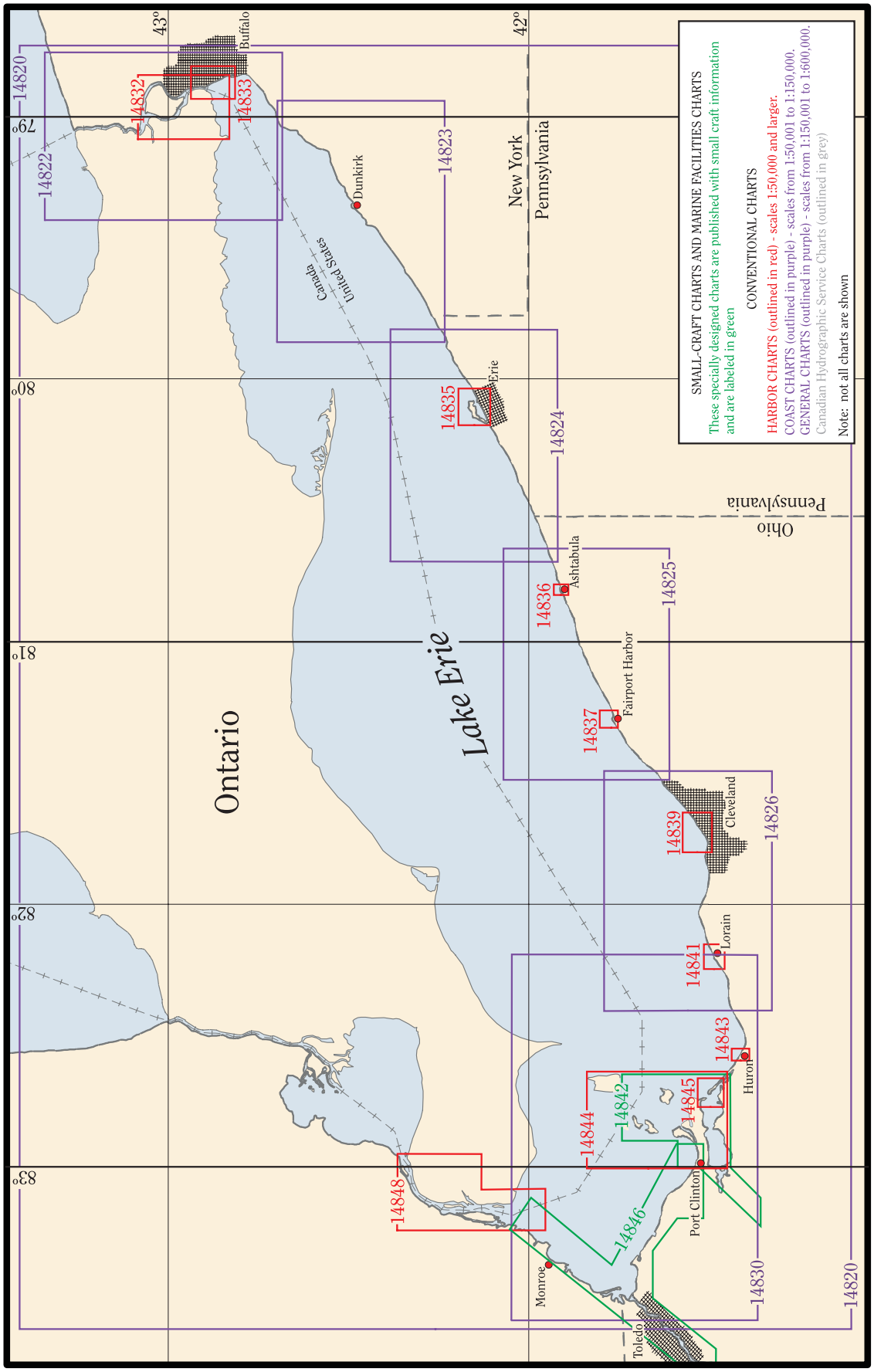
SMALL-CRAFT CHARTS AND MARINE FACILITIES CHARTS
These specially designed charts are published with small craft information and are labeled in green
CONVENTIONAL CHARTS
HARBOR CHARTS (outlined in red) - scales 1:50,000 and larger.
COAST CHARTS (outlined in purple) - scales from 1:50,001 to 1:150,000.
GENERAL CHARTS (outlined in purple) - scales from 1:150,001 to 1:600,000.
Canadian Hydrographic Service Charts (outlined in grey)
Note: not all charts are shown
Ontario
Lake Erie
New York
Pennsylvania
Ohio
Pennsylvania
Canada
United States
Buffalo
Dunkirk
Erie
Ashtabula
Fairport Harbor
Cleveland
Lorain
Huron
Port Clinton
Monroe
Toledo
14820
14822
14823
14824
14825
14826
14830
14832
14833
14835
14836
14837
14839
14841
14842
14843
14844
14845
14846
14848
79°
80°
81°
82°
83°
42°
43°

Lake Erie

Chart Datum, Lake Erie

(1) Depths and vertical clearances under overhead cables and bridges given in this chapter are referred to Low Water Datum, which for Lake Erie is an elevation 569.2 feet (173.5 meters) above mean water level at Rimouski, Quebec, on International Great Lakes Datum 1985 (IGLD 1985). (See Chart Datum, Great Lakes System, indexed as such, chapter 1.)

Dimensions, Etc.

(2) Length, steamer track, Detroit River Lighthouse to Buffalo; 236 miles.

(3) Length (right line), clear of Point Pelee and Long Point; 241 miles.

(4) Breadth (right line), Ashtabula to Port Talbot; 57 miles.

(5) Depth, maximum recorded by NOS; 210 feet.

(6) Water surface of lake; 4,980 square miles (U.S.), 4,930 square miles (Canada).

(7) Entire drainage basin; 22,980 square miles (U.S.), 9,650 square miles (Canada).

General description

(8) **Lake Erie** is the southeasternmost and fourth largest of the five Great Lakes. With a greatest depth of 210 feet, it is the shallowest of the lakes and the only one with a floor above sea level. The deepest part of the lake is generally at the E end, while the island region in the W part of the lake is the most shallow. The lake has an average depth of 62 feet. The lake is fed at the NW end by water from Lake Huron via St. Clair River, Lake St. Clair, and Detroit River. The only natural outlet of the lake is at the NE end through Niagara River. Welland Canal bypasses the falls and rapids of Niagara River and provides a navigable connection to Lake Ontario.

(9) The waters of Lake Erie E of Long Point are part of the St. Lawrence Seaway and are under the navigational control of the Saint Lawrence Seaway Development Corporation, a corporate agency of the United States, and the St. Lawrence Seaway Management Corporation of Canada. These agencies issue joint regulations covering vessels and persons using the Seaway. The regulations are codified in 33 CFR 401, and are also contained in the Seaway Handbook, published jointly by the agencies. A copy of the regulations is required to be kept on board every vessel transiting the Seaway. A schedule of the Seaway tolls is contained in the handbook. (See St. Lawrence Seaway, chapter 3, and **33 CFR 401,** chapter 2.)

(10) Extensive waterborne commerce is carried out between the ports on the lake as well as to and from the other lakes. The bulk of commerce on the lake radiates from the mouth of Detroit River to the various ports on the lake, to the Niagara River, and to Welland Canal. Most of the vessel traffic proceeds from the Detroit River through the N part of the island region and Pelee Passage. This is the most important channel of the lake. Vessels plying between Lake Erie and Lake Ontario are restricted in size by the locks in the Welland Canal; the maximum vessel dimensions are 730 feet overall length, 76 feet extreme breadth, and 26 feet draft.

Vessel traffic control

(11) Lake Erie E of Long Point is Sector 7 of the St. Lawrence Seaway vessel traffic control system. The objective of the system is to provide safe and efficient scheduling of vessel traffic, efficient search and rescue coverage, information regarding pilot requirements to the pilot dispatch centers, marine weather broadcasts, and information on vessel location to all interested parties. St. Catharines traffic control center controls traffic in Sector 7 through "Seaway Long Point," VHF-FM channel 11.

Calling-in point

(12) Upbound and downbound vessels shall contact "Seaway Long Point" on VHF-FM channel 11 when approximately abeam of the E end of Long Point, Ont. After initial contact, downbound vessels shall guard VHF-FM channel 16.

(13) Complete information on the traffic control sectors and their respective calling-in points is contained in the Seaway Handbook.

Vessel Traffic Service

(14) The Canadian Coast Guard operates a Vessel Traffic Service in Canadian waters from Long Point in Lake Erie through the Detroit and St. Clair Rivers to De Tour Reef Light in Lake Huron. (See chapter 3 and the

Annual Edition of Canadian Notices to Mariners for complete information.)

Fluctuations of water level

(15) The normal elevation of the lake surface varies irregularly from year to year. During the course of each year, the surface is subject to a consistent seasonal rise and fall, the lowest stages prevailing during the winter and the highest during the summer.

(16) In addition to the normal seasonal fluctuations, oscillations of irregular amount and duration are also produced by storms. Winds and barometric pressure changes that accompany squalls can produce fluctuations that last from a few minutes to a few hours. At other times, strong winds of sustained speed and direction can produce fluctuations that last a few hours or a day. These winds drive forward a greater volume of surface water than can be carried off by the lower return currents, thus raising the water level on the lee shore and lowering it on the windward shore. This type of fluctuation has a very pronounced effect on Lake Erie, because it is the shallowest of the Great Lakes and affords the least opportunity for the impelled upper water to return through lower return currents beneath the depth disturbed by storms. As a result, the water level in the harbors, particularly those at the ends of the lake, fluctuates markedly under the influence of the winds; the amount of fluctuation depends on the direction, strength, and duration of the wind. Fluctuations as great as 10 feet and lasting as long as 12 hours have been observed. September through April is the most likely period, particularly November, December, and January. At the E end of the lake, W winds pile up water in Buffalo Harbor and increase the depth in Niagara River, while E winds drive the water out of Buffalo Harbor and decrease the flow and depths in Niagara River. The winds produce exactly the opposite effect at the W end of the lake; the greatest effects are at Sandusky, Toledo, and the mouth of Detroit River. Intermediate points are not subject to level changes as great as those at the ends of the lake. Along the S shore, fluctuations caused by winds are generally less than 1 foot above or below normal; extreme fluctuations of about 2 feet above or below normal may occur.

(17) Water level information for the Buffalo area may be obtained by contacting Buffalo Coast Guard Group on VHF-FM channel 16; for the Toledo area by contacting Toledo Coast Guard Station, same channel; for the Gibralter area by contacting Detroit Coast Guard Group, same channel. The information is given in whole inches above or below chart datum.

Weather, Lake Erie

(18) Strong winds are mostly likely in autumn during the navigation season; November and December are the worst as gales blow 6 to 9 percent of the time. However, Lake Erie's maximum wind occurred in July, NNW at 87 knots. Reported by two vessels, these winds were triggered by an Independence Day (1969) squall line. Gales, however, are encountered less than 1 percent of the time from May through September. Summer winds blow mainly out of the S through W, particularly SW. These directions are also favored during other seasons along with northwesterlies and northeasterlies.

(19) The shallowness and orientation of Lake Erie make it susceptible to SW and NE winds, which can quickly raise dangerous seas and, if persistent, create a dangerous surge problem at both ends of the lake. Rough seas are most frequent in autumn and in the E half of the lake. Waves of 10 feet (3 m) or more can be expected up to 3 percent of the time in the E, while seas of 5 feet (1.5 m) or more are encountered 30 percent of the time lakewide; extremes of 15 to 20 feet (4.5 to 6 m) have been encountered.

(20) Poor visibility is mainly a spring and autumn navigational problem. Over open waters, spring is the most prevalent fog season. Visibilities of less than 0.5 statute mile (0.4 nm) occur up to 5 percent of the time. Visibilities of 2 statue miles (1.7 nm) or less occur 5 to 10 percent of the time during most of the navigation season. The shoreline is susceptible to both autumn radiation fogs and early spring advection fogs. Fog is more frequent along the N shore.

(21) The visibilities at **Simcoe, Ont.**, drop to less than 0.5 statute mile (0.4 nm) on an average of 46 days annually compared to a range of 15 to 23 days along the S shore. At Simcoe this includes about 4 to 6 days of fog per month in autumn and early spring, about twice as many days as Buffalo, Erie, or Toledo.

(22) Thunderstorms are responsible for some of the strongest winds on the lake. They are generally a problem from April through September, but can occur at any time. Over the open lake, they occur 1 to 3 percent of the time with a peak during the summer months. They are most likely between sunset and sunrise. Onshore they most often occur during the late afternoon, on 25 to 30 days annually. During June, July, and August, they blow on 5 to 10 days per month.

Ice

(23) The W end of Lake Erie is very shallow and freezes rapidly, the time of occurrence depending heavily on the temperatures. The ice attains an average thickness of 7 inches and an average maximum thickness of 11 inches. In Maumee Bay, the ice forms a solid sheet

about 12 to 18 inches thick. The track through the channel to Toledo remains open except for a 3-foot thickness of brash ice, a slush ice under the refrozen surface. In South Passage, the ice reaches a thickness of about 18 inches because of slight rafting and ridging. During severe winters, thicknesses to 24 inches and windrows 5 feet high have been observed. By mid-March, the ice in the W end of the lake starts to clear because of the temperatures and the prevailing W winds. The ice in this area is field ice and covers over an opened track.

(24) The central part of the lake remains open through January except for a few strips of thin ice. Growth is rapid in February, and high concentrations of thin ice develop by mid-month. By early March, medium-thickness lake ice predominates, with somewhat better conditions along the Canadian shore. Decay and clearing is rapid in mid-March, and the remaining pack is usually concentrated E of Long Point by the end of the month.

(25) In the E part of the lake, ice begins to form in early to mid-January and may reach a thickness of 8 to 12 inches by the end of the month. The solid ice increases to 16 to 20 inches thick by the end of February. In Buffalo Harbor, an average thickness of 9 inches and an average maximum thickness of 18 inches can occur. In the lake, the prevailing W winds usually jam and pack the ice to form considerable windrows. Extremely hard pressure ridges 3 to 4 feet thick are not uncommon in February and March. As the ice on the rest of the lake begins to break up, the winds force it into the E end of the lake, and it completely blocks the approach to Buffalo Harbor. The soft deteriorating ice forms mush ice about 3 to 6 feet deep, interspersed with pressure ridges 4 to 6 feet deep. The mush ice has been reported as much as 20 feet deep in places. Rafted ice fields 15 to 20 feet above the water level have occurred during severe winters; under these conditions, ice can persist thought late May. (See Winter Navigation, chapter 3.)

Submerged wellheads and pipelines

(26) Mariners are cautioned that oil and gas drilling towers are temporarily established in various parts of Canadian waters of Lake Erie. These towers have a quick flashing white light and an automatic fog signal that sounds one blast of 2 seconds duration followed by 18 seconds of silence.

(27) There are many submerged gas pipelines and wellheads in Canadian waters Lake Erie. Most of them are shown on the charts. Damage to these structures can be extremely hazardous because the natural gas if flammable, is under pressure, and contains toxic chemicals. Mariners are cautioned not to anchor in the vicinity of the submerged structures.

Fish netting areas

(28) In parts of Lake Erie that are intensively fished, gill nets, impounding nets, and trap nets may create a hazard to navigation. The areas most intensively fished and the principal type of nets employed are shown in an inset on NOS chart 14820. However, fishing gear may be encountered at any location in the lake.

Routes

(29) The Lake Carriers' Association and the Canadian Shipowners Association have recommended, for vessels enrolled in the associations, the following separation of routes for upbound and downbound traffic in Lake Erie.

(30) Downbound: Vessels leaving the Detroit River for ports E of Middle Ground Shoal shall continue on course **164°** until 0.9 mile beyond **East Outer Channel Light 1E**; thence **095°** for 27 miles for **Pelee Passage Traffic Lighted Buoy P**; thence **122°** for 8.5 miles to pass one mile S of Southeast Shoal Light.

(31) Downbound vessels for Port Colborne or Buffalo, from point of departure, Southeast Shoal, shall lay a course of **071°** for 135 miles to pass not more than 9 miles off Long Point; then steer **054°** for 45 miles to Port Colborne or steer **063°** for 60 miles to Buffalo.

(32) Upbound vessels from Port Colborne or Buffalo, to a point on the S shore, E of Marblehead, lay a course to pass not over 5 miles off **Presque Isle Light.** The course from Port Colborne is **228°** for 62 miles, and the course from Buffalo is **236°** for 77 miles.

(33) Upbound vessels for Southeast Shoal from Port Colborne or Buffalo lay a course to pass not over 3 miles off Long Point. The course from Port Colborne is **241°** for 44 miles, and the course from Buffalo is **248°** for 60 miles; then steer **249°** for 134 miles to a position 1 mile S of Southeast Shoal.

(34) Upbound vessels for **Detroit River Light** departing from a position 1 mile S of **Southeast Shoal Light** shall steer **302°** for 8.5 miles to a position **323°** 1.75 miles from Pelee Passage Light, then steer **275°** for East Outer Channel Light 1E.

(35) For Toledo and Monroe, when 0.75 mile off Pelee Passage Light steer **272°** to pass 1.5 miles N of Middle Sister Island Light, thence to destination.

(36) It is understood that masters may exercise discretion in departing from these courses when ice and weather conditions are such as to warrant it. The recommended courses are shown on chart 14820, Lake Erie.

Pilotage

(37) The following waters of Lake Erie are Great Lakes designated waters: in the approach to Welland Canal within an arc drawn 1 mile to S of the outer light on the

W breakwater at Port Colborne (Port Colborne Outer Light); W of a line on a bearing of about 026° from Sandusky Harbor Breakwater Light to Southeast Shoal Light; and within a radius of 1 mile E of Sandusky Harbor Breakwater Light. Registered vessels of the United States and foreign vessels in these waters are required to have in their service a United States or Canadian registered pilot. The remaining waters of Lake Erie are Great Lakes undesignated waters; the above vessels are required to have in their service a United States or Canadian registered pilot or other officer qualified for Great Lakes undesignated waters. Registered pilots for the Welland Canal are supplied by Great Lakes Pilotage Authority, Ltd., St. Catharines, and for Lake Erie by Great Lakes Pilotage Authority, Ltd., St. Catharines, and Lakes Pilots Association. (See appendix for addresses.) Pilot exchange points are 1 to 2 miles S of Port Colborne and just below the Ambassador Bridge on the Detroit River. The pilot boat in the Detroit River, J. W. WESTCOTT II, has a black hull encircled by an orange band and a white cabin with the words "U.S. Mail" in black letters. (See Pilotage, chapter 3, and **46 CFR 401,** chapter 2.)

Principal ports

(38) The principal ports on Lake Erie are Buffalo, N.Y.; Erie, Pa.; and Conneaut, Ashtabula, Fairport Harbor, Cleveland, Lorain, Huron, Sandusky, and Toledo, Ohio. Companies at several of the ports make above-the-waterline repairs to deep-draft vessels.

Charts 14822, 14832, 14833

Niagara River above Niagara Falls

(39) At its E end, Lake Erie becomes comparatively narrow and has its outlet in the Niagara River. From the head of the river, it is about 20 miles to the falls and rapids of **American Falls** and **Horseshoe Falls.** About 5 miles below the head, the river is divided into two channels by **Strawberry Island** and **Grand Island. Tonawanda Channel** and **Niagara River Channel,** the U.S. channels, lead to the E of these islands, and **Chippawa Channel,** the Canadian channel, leads to the W of these islands. At the lower end of Grand Island, the channels rejoin and lead for about 3.5 miles to the falls.

(40) The **International boundary** between the United States and Canada follows a general middle of the river course in the upper Niagara River from the head of the river downstream to the head of Grand Island where the river forks around the island. The boundary then follows Chippawa Channel and is generally less than 1,000 feet off the W shore of Grand Island until Chippawa Channel and Niagara River Channel join at the NW end of Grand Island. The boundary again follows a general middle of the river course around the S side of **Goat Island** and over Niagara Falls.

Chart Datum, Upper Niagara River

(41) Depths and vertical clearances under overhead cables and bridges in the Niagara River from its confluence with Lake Erie to the head of navigation, the turning basin at Niagara Falls, NY, is as follows: from Lake Erie to the Black Rock Canal Lock is the Low Water Datum of Lake Erie, 569.2 feet (173.5 meters); from just below the Black Rock Canal Lock to the south end of Grand Island is the sloping surface of the river, when the water surface just below the lock is at 564.4 feet (172.03 meters) and the Huntley Station gauge (at Niagara Mohawk Power Corporation plant) reads 563.8 feet (171.85 meters);from the south end of Grand Island to the south end of Tonawanda Island is the sloping surface of the river, when the Huntley Station gauge reads 563.8 feet (171.85 meters) and the gauge at Tonawanda Island reads 563.4 feet (171.73 meters); from the south end of Tonawanda Island to the turning basin at Niagara Falls, NY, is the sloping surface of the river, when the gauge at Tonawanda Island reads 563.4 feet (171.73 meters) and the gauge at Power Plant Intakes reads 561.5 feet (171.13 meters).All elevations are above mean water level at Rimouski, Quebec, on International Great Lakes Datum 1985 (IGLD 1985). (See Chart Datum, Great Lakes System, indexed as such, chapter 1.)

Fluctuations of Water Level

(42) Variations in Lake Erie levels above or below Low Water Datum are reflected in Niagara River levels. The amount of the variation ranges from the full Lake Erie variation at the head of the river and gradually diminishes downstream to the vicinity of Chippawa, Ont., just above Niagara Falls.

(43) From Lake Erie, the fall of the Niagara River is about 10 feet to the head of the upper rapids near the junction with the Welland River. Just below the Welland River entrance, about 1.2 miles E of Goat Island, the Niagara waters begin their rapid descent to the level of Lake Ontario through the rapids above the falls, the great falls themselves, and the rapids below the falls. From the upper rapids, the fall of the river to Lake Ontario is about 316.5 feet.

Currents

(44) For about 1.7 miles, from its head to just above Peace Bridge, the river is wide, shallow, and rocky, and the current is from 2 to 3 mph. Just above the Peace Bridge, the river becomes a narrow gorge for about 2 miles to the lower end of Squaw Island. In the upper

part of this gorge, the river is shallow, and the currents are about 8 mph at low to mean river stages and 9 mph at high stages. In the lower part of the gorge, the river is deeper and somewhat wider.

(45) In August 1986, with water level at 4.8 feet above low water datum, speed of the current was 7.7 to 9.7 knots.

(46) Currents just below the International Bridge have speeds of 4 mph at low to mean river stages and 4.75 to 5 mph at high stages. In Tonawanda and Chippawa Channels, the currents vary from 1 to 4 mph.

Channels

(47) Black Rock Canal is the recommended route from Lake Erie to facilities in the Niagara River below **Squaw Island.** The channel formerly dredged in the open river W of Bird Island and Squaw Island has shoaled to depths of 10 feet or less. The bottom in this reach is generally rocky, and the currents are strong and variable. Great care should be exercised in navigating this section of the river.

(48) A floating steel pontoon ice boom is placed across the entrance to the head of the Niagara River during the winter. In any one year, installation of the boom shall not commence prior to December 16 or prior to the water temperature at the Buffalo water intake reaching 4°C (39°F), whichever occurs first. The boom shall be opened by April 1, unless there is more than 250 square miles of ice E of Long Point (42°33'N., 80°03'W.); complete disassembly and removal of all floatation equipment shall be completed within two weeks thereafter.

(49) **Black Rock Canal** provides a safe passage for vessels around the rapids and shoals in the head of the Niagara River.

(50) The Lake Erie entrance to Black Rock Canal is through Buffalo Harbor North Entrance Channel and across the Outer Harbor Northern Channel to Black Rock Canal Entrance Channel. From its entrance, the canal leads northward along the Buffalo front, parallel with the river and separated from it by **Bird Island Pier** and Squaw Island. Bird Island Pier and Squaw Island retain the canal pool from the W, and, along with Black Rock Lock, serve to keep the canal level at the same elevation as the water surface of Lake Erie.

(51) From Black Rock Lock at the lower end of Squaw Island, the dredged channel extends to a point about 0.7 mile below **Pirates Island,** off the SE side of Grand

Island, thence through the natural deep water of Tonawanda Channel. W of **Tonawanda Island,** the dredged channel continues to a turning basin on the N side of Tonawanda Island at North Tonawanda.

(52) From Buffalo North Entrance Channel through Black Rock Canal and Lock to and in the turning basin N of Tonawanda Island, the Federal project depth is 21 feet. (See Notice to Mariners and the chart for controlling depths.)

(53) From the downstream end of the turning basin at North Tonawanda, Niagara River Channel leads along the N side of Grand Island to a basin off the public dock at Niagara Falls, N.Y.

(54) Black Rock Canal and the dredged channels leading to the turning basin N of Tonawanda Island are marked by lights, buoys, and lighted ranges.

(55) Passing down the Niagara River from Lake Erie toward Niagara Falls is considered "proceeding from seaward." Buoyage in the river and the Black Rock Canal is based on this convention. Red buoys are on the right-hand side, looking downstream, and black on the left-hand side.

(56) **Black Rock Lock** connects the canal with the river near the foot of Squaw Island. The lock has a usable length of 625 feet with a clear width of 68 feet and a depth of 21 feet over the sills. The lock has an average lift of 5.2 feet.

(57) The lockmaster monitors VHF-FM channels 16 and 12, call sign WUD-21 or voice call Black Rock Lock. A vessel desiring passage through the lock is requested to contact the lockmaster by radio, or telephone 716-876-5454, well in advance of her arrival at the lock. (See **33 CFR 207.590**, chapter 2, for details on establishing early communications with the lockmaster.)

(58) Effective in 1969, all vessels transiting the Black Rock Canal shall adhere to the following when entering or departing the Black Rock Lock. These controls, including the whistle signal of two long and two short blasts, are in addition to the regulations and information otherwise noted in this Coast Pilot.

(59) 1. Maintain only that speed which is necessary to provide sufficient control of the vessel and reasonable headway.

(60) 2. Refrain from using bow thruster either in the lock chamber or in the canal from the signal light on the upper E wall to the lower end of the E wall.

(61) Vessels are requested to follow these procedures in order that damage to the operating gates may be prevented.

(62) Lockage for pleasure craft is scheduled downbound on the hour, upbound on the half hours, commercial traffic permitting.

(63) The following signals control the movement of vessels through Black Rock Lock:

(64) For downbound (northbound) traffic, a signal light mounted on a standard on the E approach wall at the entrance to the lock chamber shows green to indicate a clear entrance into the lock chamber. When this signal is red, the downbound vessel will moor at the E approach wall until such time as clear entrance to the lock is indicated by the green light.

(65) For upbound (southbound) traffic approaching the lock from the Niagara River channel, a signal light shows green to indicate a clear entrance to the lock chamber and red to indicate that the lock chamber is closed.

(66) **Bird Island** is on the W side of the Black Rock Canal about 1.3 miles below the entrance. Piers that enclose the canal extend S from Bird Island and N to connect with Squaw Island. A **special anchorage** is on the N and S sides of Bird Island. (See **33 CFR 110.1 and 110.84,** chapter 2, for limits and regulations.)

Caution

(67) The canal generally has a slight current downstream. During rapidly rising or high water in Lake Erie, there is a strong crosscurrent at the S end of Bird Island Pier.

Bridges

(68) Three bridges cross Black Rock Canal. Peace Bridge, 2 miles below the S entrance, has a fixed span with a clearance of 100 feet. An overhead power cable 0.2 mile below the bridge has a clearance of 144 feet. Ferry Street Bridge, 2.6 miles below the entrance, has a bascule span with a clearance of 17 feet for 86 feet from the E abutment, thence decreasing to 12 feet at the W abutment. The bridgetender monitors VHF-FM channel 16 and works on channel 12. International Bridge, with a combined rail and highway swing span 3.8 miles below the entrance, has a clearance of 17 feet. (See **33 CFR 117.1 through 117.49 and 117.769,** chapter 2, for drawbridge regulations.)

Regulations

(69) A **speed limit** of 6 mph (5.2 knots) is enforced in Black Rock Canal. (See **33 CFR 162.175 and 207.590,** chapter 2, for canal regulations.)

(70) The canal has no docks or facilities for mooring large vessels. The Buffalo Yacht Club maintains a small-craft basin on the canal adjacent to the Buffalo waterworks pumping station. Downstream from the yacht club basin, a berthing area about 12 feet deep has been dredged for the U.S. Naval and Marine Corps Reserve Training Center. Several small-craft facilities are on **Scajaquada Creek,** which enters the canal about 0.5 mile SE of the lock. Transient berths, gasoline, water,

electricity, marine supplies, a launching ramp, a 4-ton mobile crane, and hull and gasoline engine repairs are available. In 1977, 4 feet was reported available in the approach and alongside the berths.

(71) **Peace Bridge** crosses the open Niagara River about 1.5 miles from the head. The bridge has several fixed spans with center clearances of 56 to 91 feet. The normal vessel route is under the fourth span from the U.S. mainland (the first being the bowstring truss over the Black Rock Canal). This span has a clearance of 67 feet at the center. An intake crib marked by a light is just downstream of the third span from the U.S. mainland. Navigation through this span is difficult in the turbulent current.

(72) An overhead power cable with a clearance of 126 feet crosses the river 0.2 mile downstream of Peace Bridge.

(73) **International Bridge** crosses the river about 1.5 miles below Peace Bridge. This railroad bridge has fixed spans with clearances of 22 feet. A swing span at the E end of the bridge, close W of Squaw Island, does not open for the passage of vessels. (See **33 CFR 117.803,** chapter 2, for drawbridge regulations.)

(74) Just below International Bridge on each side of the river are submerged flowmeter pilings about 13 feet below the water surface.

(75) **Fort Erie, Ont.,** is a community on the W side of the head of the Niagara River.

(76) **Lower Black Rock Harbor** is the name applied to the part of Buffalo which fronts on the Niagara River below Black Rock Lock. The harbor is about 0.75 mile long with the upper part between the lock and the mainland. Loaded vessels should use the Black Rock Canal to approach the harbor. Approaching from the open river, the current passing the guide pier below the Black Rock Lock creates a powerful eddy with water flowing upstream along the U.S. side for more than 0.5 mile below the lock. Caution is advised when entering the harbor or docking. The harbor has several marinas. Transient berths, gasoline, diesel fuel, water, ice, electricity, marine supplies, a launching ramp, mobile lifts to 30 tons, and hull, engine, and electronic repairs are available. In 1977, depths of 7 to 12 feet were reported alongside the berths.

(77) Just below Black Rock Lock, **Strawberry Island** divides the Niagara River into Chippawa Channel and Tonawanda Channel, leading W and E, respectively, of Grand Island. **Chippawa Channel** extends from Strawberry Island for about 11 miles along the SW and W sides of Grand Island to **Navy Island** at the downstream end. The channel leads around either side of Navy Island and joins Niagara River Channel to flow to **Niagara Falls.** In 1982, Chippawa Channel had a reported controlling depth of about 9 feet with shallower depths along the shores. Both sides of Navy Island have good channels but care must be taken to avoid the shoals that extend off the S and NW tips of the island.

(78) Chippawa Channel has several small-craft facilities on both the Grand Island, United States, side of the channel and the mainland Ontario side. Beaver Island State Park Marina is at the S end of Grand Island. Transient berths, water, electricity, and sewage pump-out facilities are available. In 2002, depths of 5 feet were reported in the entrance with 4 feet alongside the berths. Big Six Mile Creek Marina is on the W side of Grand Island about 7.5 miles from the upper end of the channel. Transient berths, gasoline, water, electricity, sewage pump-out facilities, and launching ramps are available. In 1977, depths of 8 feet were reported in the entrance with 6 to 10 feet alongside the berths reported in 1982. A fixed highway bridge and two overhead cables crossing the entrance have a reported least clearance of 16 feet.

(79) The Niagara Parks Commission marina, on the Canadian side of Chippawa Channel opposite Beaver Island State Park, has gasoline, diesel fuel, and sewage pump-out facilities. Depths of 10 feet are reported alongside the marina wharf.

(80) **Tonawanda Channel** extends from Strawberry Island for about 8.5 miles along the E side of Grand Island to **Tonawanda Island** and the adjoining cities of Tonawanda and North Tonawanda. The dredged and natural channel through this stretch was previously described.

(81) **South Grand Island Bridge**, crossing the channel about 3.4 miles below Strawberry Island, has twin fixed highway spans with a clearance of 99 feet at the center of the central spans. Vessels requiring the full height should keep at least 90 feet from the face of the piers. Two overhead power cables with a minimum clearance of 115 feet cross the channel about 0.75 mile downstream of the bridge.

Wharves

(82) Several deep-draft facilities are in Tonawanda Channel on the E side of the river. (For a complete description of the port facilities, refer to Port Series No. 41, published and sold by the U.S. Army Corps of Engineers. See appendix for address.) The depths alongside are reported depths. (For latest depths, contact the operators.)

(83) **C. R. Huntley, Station Coal Wharf**: (42°58'03"N., 78°55'47"W.); 753-foot face; 17 to 21 feet alongside; deck height, 10 feet; open storage for 500,000 tons of coal; rail connections; receipt of coal; owned and operated by Niagara Mohawk Power Corp.

(84) **Marathon Petroleum Co. Wharf:** (48°59'00"N., 78°56'30"W.); 1,120-foot face; 1,410 feet with dolphins;

22 feet alongside; deck height, 8 feet; tank storage for 162,000 barrels of asphalt; receipt of asphalt by barge; owned and operated by Marathon Petroleum Co.

(85) **NOCO Energy Corp. Wharf**: about 700 feet S of South Grand Island Bridge; 400 feet of berthing space with dolphins; 22 feet alongside; deck height, 12 feet; storage tank capacity of 1,066,150 barrels; receipt and shipment of petroleum products and chemicals; owned and operated by NOCO Energy Corp.

(86) **Ashland Oil Wharf:** about 0.3 mile S of South Grand Island Bridge; 330 feet of berthing space with dolphins; 22 feet alongside; deck height, 7 feet; tank storage capacity of 200,000 barrels; receipt of petroleum products; owned and operated by Ashland Oil, Inc.

(87) Several marinas on both sides of Tonawanda Channel between Strawberry Island and South Grand Island Bridge provide transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out, marine supplies, and launching ramps. Mobile lifts to 40 tons are available for hull, engine, and electronic repairs. In 1977, depths of 25 feet and less were reported alongside the berths.

(88) **Tonawanda Harbor**, about 12 miles via Tonawanda Channel below the head of the Niagara River, is the W terminus of the New York State Barge Canal. The harbor comprises the river frontage of **Tonawanda, N.Y.,** and **North Tonawanda, N.Y.; Tonawanda Creek,** which separates the two cities, for about 1,400 feet to the Main-Webster Street Bridge; and all of the waterfront of Tonawanda Island, which lies in the river off the main shore.

(89) The part of Tonawanda Harbor extending S from the North Tonawanda turning basin along the E side of Tonawanda Island has depths of about 15 feet with depths of 12 feet in Tonawanda Creek from the mouth to the highway bridge 0.2 mile above the mouth.

Bridges

(90) Two bridges cross Tonawanda Harbor from the S part of Tonawanda Island to the mainland. Frederick B. Durkee Memorial Bridge is a fixed highway span with a clearance of 14 feet at the center. A railroad swing bridge just S has a clearance of 10 feet, but is being maintained in the open position. (See **33 CFR 117.1 through 117.59 and 117.811,** chapter 2, for drawbridge regulations.)

(91) Three bridges cross the lower part of Tonawanda Creek. A railroad swing bridge just above the mouth has a clearance of 9 feet. (See **33 CFR 117.809,** chapter 2, for drawbridge regulations.) The bridge is maintained in the open position. Fixed highway bridges 0.2 and 0.3 mile above the mouth have clearances of 24 and 15 feet, respectively.

(92) A **speed limit** of 5 mph (4.4 knots) is enforced in the harbor and in Tonawanda and Ellicott Creeks within the Tonawanda and North Tonawanda city limits. The **harbormasters** of both communities and the sheriff of Erie County enforce these laws and can be contacted through their respective departments.

(93) Several marinas in the harbor provide transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out, and marine supplies. Mobile lifts to 40 tons are available for hull, engine, and electronic repairs. In 1977, depths of 8 to 13 feet were reported alongside the berths.

(94) The **New York State Canal System** is entered through Tonawanda Creek. (The canal system is described in chapter 14.)

(95) **Niagara River Channel**, a dredged channel, leads from the lower end of the turning basin at North Tonawanda along the N side of Grand Island to a basin off the public dock at Niagara Falls, N.Y. In October 2002, the controlling depth in the channel was 11.8 feet. The channel is marked with buoys.

(96) **Cayuga Island**, close to the N shore of Niagara River Channel about 5 miles below Tonawanda Island, is separated from the mainland by **Little River,** which outlets at either end of the island. **Cayuga Creek** flows into Little River at about midlength of the island. Little River and Cayuga Creek afford a well-protected harbor for small craft. A dredged channel leads from deep water in Niagara River through the lower entrance to Little River. In 1977, the reported controlling depth was 5 feet. The upper entrance to Little River, marked by a private **344°** range, had a reported controlling depth of 4 feet in 1980. Depths inside are about 4 to 7 feet. A fixed highway bridge with a reported clearance of 10 feet crosses Little River just W of the mouth of Cayuga Creek. An overhead cable with a clearance of 55 feet crosses the river about 0.35 mile W of the bridge. A fixed highway bridge crossing Cayuga Creek just above the mouth has a clearance of 9 feet.

(97) A marina on the N side of the lower entrance to Little River provides gasoline, ice, a launching ramp, a 2-ton lift, and hull and engine repairs.

(98) **Buckhorn Island** is at the NW end of Grand Island opposite Niagara Falls, N.Y. A two-section permanent flow control dike extends NW from the W end of Buckhorn Island closing off the former Buckhorn Channel. Lights mark the ends of the dikes.

(99) An unmarked **dumping ground** is between the dredged portion of Niagara River Channel and the NE end of Buckhorn Island; caution is advised.

(100) **North Grand Island Bridge,** a twin fixed highway bridge, crosses the river between Niagara Falls, N.Y., and Buckhorn Island. The vertical clearance is 44 feet through the central spans where Niagara River Channel passes. Two overhead power cables crossing the river about 0.5 and 0.7 mile below the bridge have clearances of 79 and 75 feet, respectively. Cable support towers in the river are marked by lights.

(101) **Niagara Falls, N.Y.**, is on the N shore of the Niagara River at the W end of Niagara River Channel. A public dock on the N side of the dredged basin at Niagara Falls provides 300 feet of berthing space with 4 feet reported alongside in 1977.

Weather, Niagara Falls

(102) Niagara Falls, NY, located in extreme northwestern New York is on the isthmus between Lake Ontario and Lake Erie. The average annual temperature is 48°F (8.9°C) with an average maximum of 56°F (13.3°C) and an average minimum of 40°F (4.4°C). The all time extremes in temperature are 96°F (35.6°C) and -16°F (-26.7°C). July is the warmest month averaging 72°F (21.7°C) and January the coolest, averaging 24°F (-4.4°C). June through September have each recorded temperatures in excess of 90°F (32.2°C) and every month except June, July, and August have seen temperatures below freezing (0°C).

(103) The average annual precipitation for Niagara Falls is 33.93 inches (861.8 mm) which is fairly evenly distributed throughout the year. The wettest month is August with 4.31 inches (109.4 mm) and the driest, June, averages only 1.87 inches (47.5 mm). Snow fall averages about 66 inches (1676 mm) each year. December, January, and February each average greater than 15 inches (381 mm) per year with a slight maximum in January. Snow has fallen in every month except June, July, and August.

(104) The prevailing wind direction in Niagara Falls is southwest, off the lake, throughout the year.

(105) (See Page T-2 for **Niagara Falls climatological table.**)

(106) Niagara Falls is a **customs port of entry.**

(107) SW of Niagara Falls, N.Y., Niagara River Channel and Chippawa Channel join, and the Niagara River, more than 1 mile wide at the junction, flows W for almost 3 miles to the falls. In this stretch above the falls, the river becomes quite shallow with numerous submerged rocks. The deeper water is generally close to the S shore W of Navy Island as far as Chippawa, Ont.

(108) **Chippawa, Ont.**, is on the S shore of the Niagara River about 1.8 miles above Niagara Falls, at the junction with the **Welland River.** At the junction of the two rivers are the intake structures of the Queenston plant of the Ontario Hydro-Electric Power Commission. Because of the intake structures, the flow of the Welland River has been reversed and is now from the Niagara River. Mariners are cautioned that the current in the Niagara River at the entrance to the Welland River is very strong. From the entrance, the power commission has dredged the Welland River to a depth of 30 feet for about 4 miles. Above this point, the controlling depth is about 6 feet.

(109) The United States and Canadian Governments have designated the Niagara River for about 2 miles above the falls a safety zone. (See **33 CFR 165.1 through 165.7, 165.20 through 165.25, and 165.902,** chapter 2, for limits and regulations in U.S. waters.)

Canadian Regulations Respecting Navigation on the Upper Niagara River

(110) 1. These Regulations may be cited as the Upper Niagara River Regulations.

(111) 2. In these Regulations,

(112) (a) "Upper Niagara River" means the Canadian Waters of the Niagara River between the crest of Horseshoe Falls at Niagara Falls, Ontario, and the Peace Bridge at Fort Erie, Ontario; and

(113) (b) "vessel" means any ship or boat or any other description of vessel used or designed to be used in navigation.

(114) 3. No vessel shall navigate the Upper Niagara River downstream of a straight line joining the end of the breakwater at the mouth of the Welland River to the W side of the mouth of Gill Creek at Niagara Falls, New York, except for the purpose of saving life in an emergency.

(115) 4. The Minister of Transport may exempt any vessel from compliance with these Regulations.

(116) 5. (1) A person who violates the provisions of section 3, is guilty of an offence and liable on summary conviction to a fine not exceeding five hundred dollars.

(117) (2) A person who

(118) (a) operates any vessel contrary to the provisions of section 3;

(119) (b) is a party to any act described in paragraph (a); or

(120) (c) is the owner, charterer, hirer, master or person in charge of a vessel that is operated contrary to the provisions of section 3 shall be deemed to have violated those provisions unless, in any prosecution for such violation, he establishes that the act in respect of which the prosecution has been commenced took place without his consent and that he exercised all due diligence to prevent its commission.

Charts 14822, 14832, 14833

(121) **Buffalo Harbor** is at the E end of Lake Erie, where the lake converges to an open and comparatively shallow bay about 8 miles across N and S and is subject to great storms from the SW. The lake discharges into the Niagara River at the NE corner of this bay. The city of **Buffalo, N.Y.,** is along the E lakeshore and the E bank of the head of the Niagara River. **Buffalo River** meanders through the city from E to W and enters the lake near the head of the Niagara River.

(122) Waterborne commerce at the port is in iron ore, limestone, iron and steel products, petroleum and coal products, grain, sand, tar, cement, salt, other minerals, and general and containerized cargo in the foreign and domestic trades.

Prominent features

(123) The stacks of Bethlehem Steel Corp. at Lackawanna near the S end of the harbor are the most conspicuous objects when approaching Buffalo Harbor. Also prominent are the Marine Midland Center and the City Hall tower in downtown Buffalo.

(124) **Buffalo Harbor Light** (42°52.2'N., 78°54.2'W.), 71 feet above the water, is shown from a white tower on a concrete base on the S end of the detached W breakwater on the N side of Buffalo Harbor North Entrance Channel. A fog signal is at the light.

Channels

(125) A Federal project provides for an outer harbor formed by breakwaters parallel with the shore and an inner harbor comprising the Buffalo River and the Buffalo Ship Canal.

(126) **Buffalo Outer Harbor** has entrances at the N and S ends. From deep water in Lake Erie, **Buffalo Harbor North Entrance Channel,** marked by lights on the ends of the breakwaters and lighted buoys, extends NE into Outer Harbor and thence into two waterways, Black Rock Canal and Buffalo River. Federal project depth in the channel is 25 feet. There is a strong N current across this channel; navigators should guard against this by holding up toward the S. **Buffalo Harbor South Entrance Channel,** marked by lights on the ends of the breakwaters, extends SE from deep water in the lake to Outer Harbor and thence into two canals, Union Canal and Lackawanna Canal. Federal project depth in the channel is 30-29 feet. (See Notice to Mariners and latest edition of charts for controlling depths.)

(127) Buffalo Outer Harbor provides a safe harbor of refuge and anchorage and is also used extensively by large lake vessels as a channel. Vessels seeking anchorage and small vessels passing along the breakwaters are cautioned against approaching them nearer than 100 feet in order to avoid striking the stone riprap. Federal project depths in Outer Harbor are 23 feet in Northern Channel, 27 feet in Middle Channel, 28 feet in Southern Channel, and 23 feet in the turning basin. The turning basin is marked by buoys. (See Notice to Mariners and latest edition of charts for controlling depths.)

(128) **Lackawanna Canal** extends S for 0.75 mile from the S end of Outer Harbor. The entrance is marked by private lights. In 1973, the controlling depth was 25 feet with 24 feet along the dock on the W side and shoaling to 22 feet at the S end.

(129) **Union Canal**, marked at the entrance by a buoy and a private light, extends E for about 0.8 mile from the S end of Outer Harbor. In 1973, the midchannel controlling depth was 20 feet.

(130) Buffalo Inner Harbor comprises Buffalo River and Buffalo Ship Canal. The dredged section of **Buffalo River** extends SE and then generally E for about 5.8 miles from the N end of Outer Harbor to the ConRail railroad bridge. Federal project depth is 22 feet. However, the river is subject to extensive shoaling. The entrance to the river is marked by lights and buoys. (See Notice to Mariners and latest edition of charts for controlling depths.) Above the ConRail bridge, depths are 5 to 15 feet to the mouth of **Cazenovia Creek** and thence 1 to 6 feet to the Bailey Avenue Bridge. Submerged rocks immediately above Bailey Avenue Bridge render navigation for even small craft very hazardous.

(131) From about 1,000 feet downstream of the junction of the Buffalo River and Buffalo Ship Canal upstream for about 1 mile, the river bottom is soft clay and mud overlying rock to a depth ranging from 1 to several feet. Vessels grounding in this portion of the river are seldom damaged by contact with the bottom. Above this point for about 1 mile, the channel is cut through solid rock.

(132) **Buffalo Ship Canal** extends SE for about 1.4 miles from the inner end of Buffalo River Entrance Channel. The Federal project depth is 22 feet for about 1 mile. (See Notice to Mariners and latest edition of charts for controlling depths.)

(133) **Black Rock Canal Entrance Channel**, marked by lights and buoys, extends N from the N end of Outer Harbor. Federal project depth is 21 feet. (See Notice to Mariners and latest edition of charts for controlling depths.) **Black Rock Canal** is the navigable channel of the upper Niagara River as far N as **Tonawanda** and is discussed more fully under Niagara River. The Lake Erie W terminus of the Erie branch of the **New York State Canal System** is at Tonawanda.

Anchorages

(134) The Outer Harbor is all good anchorage ground, except that the bottom is very soft clay S of the middle gap of the breakwaters. There are about 22 large mooring rings on the breakwater adjoining the North Entrance Channel and 25 on the breakwater adjoining the South Entrance Channel. Vessels are permitted to moor to the breakwaters with manila or synthetic lines, but not with wire rope or chains. Vessels are requested not to anchor N of Berthing Area 11. Vessels not longer than 550 feet will be permitted to anchor in Berthing Areas 11 through 17. However, no anchorage will be permitted in Berthing Areas 11 through 24 until vessel traffic to the Niagara Frontier Transportation Authority pier at the foot of Michigan Avenue has ended for the navigation season, and then only by permission from the District Engineer, U.S. Army Corps of Engineers, Buffalo, N.Y. Anchorage will be permitted in berthing areas S of Berthing Area 24 with no restrictions as to length of vessel. The berthing areas are all marked by large orange numbers painted on the harbor face of the breakwaters.

(135) Explosives anchorages are in Outer Harbor Middle Channel and on the S side of South Entrance Channel. (See **33 CFR 110.1 and 110.208,** chapter 2, for limits and regulations.)

(136) A special anchorage is in the small-craft basin on the E side of Outer Harbor. (See **33 CFR 110.1 and 110.84b,** chapter 2, for limits and regulations.)

Dangers

(137) Numerous unmarked detached shoal spots with depths less than 30 feet are in the E end of Lake Erie, in the approaches to Buffalo Harbor and the Niagara River. **Waverly Shoal,** with a least depth of 10 feet, is 1.9 miles WSW of Buffalo Harbor Light. Depths of 18 feet extend about 0.4 mile N and 1 mile S from the shallowest part of the shoal.

(138) Unmarked 20-foot shoals are 1.4 and 2.6 miles SW of Buffalo Harbor Light.

(139) In May 1987, an artificial reef, marked by a buoy, was reported 1.9 miles SSE of Buffalo Harbor Light in about 42°50'41"N., 78°53'27"W.

Local bridge regulations

(140) **Sec. 305. Bridge Control and Traffic.**–Whenever, between 6:30 a.m. and 8 p.m., at movable bridges over any portion of the harbor, persons, teams, or vehicles have been delayed at said bridge 10 minutes by reason

of any such bridge being open for a vessel to pass, it shall be the duty of the bridgetender or other persons in charge thereof to give said signals and immediately close said bridge and keep it closed 10 minutes for such persons, teams, or vehicles to pass, if so much time shall be required, when said bridge shall be opened again and kept open for a like period, if necessary, for vessels to pass, and so on, alternately, if necessary, during the hours aforesaid.

(141) **Sec. 307. Time to Remain Open.**–Whenever any person having charge of any vessel shall wish to move the same past any bridge over any portion of the harbor, reasonable time shall be allowed for opening the same.

(142) **Sec. 308. Fire and Police Vehicles-Right of Way.**–Whenever at any alarm of fire any fire engine, hose cart, or other fire apparatus shall approach any bridge over the harbor, for the purpose of crossing the same toward such fire, the bridgetender shall, if such bridge is open, close the same as soon as practicable and keep it closed until such fire apparatus shall have had an opportunity to pass over said bridge, notwithstanding vessels may be delayed thereby. All vehicles of the fire department and the police department and vessels operated by either of said departments, shall have the right of way across or through any such bridge over all other traffic.

(143) **Sec. 309. Vessel Signals.**–It shall be unlawful for the owner, officer, or other person in charge of any vessel to attempt to pass any movable bridge across the harbor while a stop signal is being given or displayed.

(144) The commissioner of public works shall provide and maintain signals at the public highway bridges over the harbor, as required by the U.S. Commissioner of Lighthouses, for the security of navigation.

(145) The owner of any movable bridge over the harbor shall provide and maintain vessel signals, as required by the Commissioner of Lighthouses, or by ordinances of the city of Buffalo, for the security of navigation. During closed seasons of navigation, lights on bridges over the harbor and other structures in the harbor must be exhibited from sunset to sunrise at all times when vessels can enter port or are navigating in the vicinity.

(146) **Sec. 310. Railroad Bridges**.–For all bascule or swing bridges over any portion of the harbor not carrying highway traffic, when any vessel shall signal for its opening, the bridgetender shall immediately open the bridge, unless a train be on the bridge or approaching it so closely as to be unable to stop, and in that case the bridge shall be kept closed long enough for the passage of one train and no more.

(147) **Sec. 312. Steamboat Whistles.**–No person, firm, or corporation shall blow or cause to be blown the steam whistle of any vessel, for any purpose whatever, while lying at any wharf or dock in the city of Buffalo, or when approaching or leaving such wharf or dock, or when passing through any drawbridge over the harbor, or when running in the harbor, except when necessary as a signal of danger and in cases and under circumstances prescribed by the laws and regulations of the United States and by the ordinances of the city of Buffalo.

(148) No captain or person in charge of a vessel in the Buffalo harbor shall permit any whistle upon such vessel to be blown except for the purpose of giving and answering signals; and no "four whistles" shall be answered by any vessel while lying at the dock.

Fluctuations of water level

(149) The water level of Lake Erie at Buffalo is frequently affected, usually for periods of less than 12 hours, by strong SW or NE winds. It is reported that these winds may raise or lower water levels by as much as 6 feet. The record fluctuations recorded are 10½ feet above and 4½ feet below Low Water Datum.

(150) The records of the monthly mean stages at Buffalo show that the periods of lowest water during the navigation season are in the spring and fall, the latter being the busiest time of the year in the harbor, when the necessity for deep water is greatest.

(151) Water level information for the Buffalo area may be obtained by contacting Buffalo Coast Guard Group on VHF-FM channel 16. The information is given in whole inches above or below chart datum.

Currents

(152) There is very little current in the outer harbor except during sudden fluctuations of water level, which may cause considerable current, especially in the entrance channels.

(153) The currents in the river are reported to reach velocities of 3 to 5 mph, changing direction and velocity abreast Buffalo Ship Canal. Rapid fluctuations in Lake Erie produce quite strong currents in the river within 1 mile of the mouth, inflowing or outflowing as the case may be. Heavy rainfalls and spring freshets are attended by strong outflowing currents due to rapid rises of the river and the consequent discharge of flood water. These conditions cause difficulties to navigation and sometimes damage to vessels by tearing them from their moorings, but occur only two or three times each year and for only a few hours at a time. With heavy rainfalls, it is reported that currents in the river sometimes reach velocities of 6 to 10 knots.

Weather, Buffalo and vicinity

(154) Buffalo, NY, located on the extreme northeast shore of Lake Erie and in the western part of the state,

Structures across the Buffalo Waterways
**Miles above North Breakwater South End Light*
***Clear width in feet proceeding upstream*

No.	Location and Name	Kind	Miles*	Clear width in feet of draw or span openings**			Clear height in feet above Low Water Datum	Remarks
				Right	Left	Center		
	Buffalo River							
	Junction with Buffalo Ship Canal		0.97					
1	Buffalo Skyway Bridge	Highway	1.00			215	100	Fixed
2	Michigan Ave. bridge	Highway	1.34			177	20	Vertical lift. Clearance up 101 feet. Note 1.
3	Ohio St. bridge	Highway	2.10			251	18	Vertical lift. Clearance up 105 feet. Note 1.
4	Overhead cable	Power	3.40				133	
5	ConRail bridge	Railroad	4.02			100	18	Bascule. Note 1.
6	ConRail bridge	Railroad	4.39			97	12	Bascule. Note 1.
7	Buffalo Creek RR bridge	Railroad	4.39			97	12	Bascule.
8	ConRail bridge	Railroad	5.07			112	36	Bascule.
9	South Park Ave. bridge	Highway	5.22			200	19	Vertical lift. Clearance up 95 feet. Notes 1 and 2.
10	ConRail bridge	Railroad	5.79			104	25	Bascule. Note 3.
	Junction with Cazenovia Creek		6.09					
11	Bailey Ave. bridge	Highway	6.24			91	17	Bascule.
	Cazenovia Creek							
12	Overhead cable	Power	6.19					Data not available.
13	Bailey Ave. bridge	Highway	6.22				12	Fixed.
	Buffalo Ship Canal							
14	Buffalo Skyway Bridge	Highway	1.10			193	100	Fixed
	Union Canal							
16	Fuhrmann Blvd. bridge	Highway	0.68			80	9	Bascule. Note 4.
17	Father Baker Memorial Bridge	Highway	0.70			200	105	Fixed. Note 4.

See **33 CFR 117.1 through 117.49**, chapter 2, for drawbridge regulations.

Note 1.–See **33 CFR 117.1 through 117.59 and 117.773**, chapter 2, for drawbridge regulations

Note 2.–Clear height when raised is 95 feet at left channel limit increasing to 100 feet 25 feet channelward of right channel limit and 100 feet at right channel limit. Clear height when closed is 19 feet at left channel limit and 20 feet at right channel limit with an increased height of 21 feet over a width of 140 feet 50 feet channelward of the left channel limit and extending within 10 feet of the right channel limit.

Note 3.–Not operated until channel above bridge is opened to traffic.

Note 4.–Mileage is above South Buffalo North Side Light.

averages about four days each year with maximum temperatures in excess of 90°F (32.2°C). July is the warmest month with an average high of 81°F (27.2°C) and an average minimum of 62°F (16.7°C). January is the coolest month with an average high of 31°F (-1°C) and an average minimum of 18°F (-7.8°C). The highest temperature on record for Buffalo is 99°F (37.2°C) recorded in August 1948; the lowest temperature on record is -20°F (-28.9°C) recorded in February 1961. About 131 days each year sees temperatures below 32°F (0°C) and an average 11 days each year records temperatures below 5°F (-15°C). Every month has seen temperatures below 50°F (10°C) and every month except June, July, and August has recorded temperatures below freezing (0 °C).

(155) The average annual precipitation for Buffalo is 38.3 inches (972.83 mm) which is fairly evenly distributed throughout the year. Precipitation falls on about 236 days each year. The wettest month is November with 3.9 inches (99.1 mm) and the driest, February, averages only 2.5 inches (64 mm). An average of 30 thunderstorm days occur each year with July and August being the most likely months. Snow falls on about 106 days each year and averages about 90 inches (2286 mm) each year. December and January each average greater than 20 inches (508 mm) per year while February averages 18 inches (457 mm). Eighteen inch (457 mm) snowfalls in a 24-hour period have occurred in each month November through February and 38 inches (965 mm) fell in one 24-hour period during December 1995. About 19 days each year has a snowfall total greater than 1.5 inches (38 mm) and snow has fallen in every month except June, July, and August. Fog is present on average 158 days each year and is evenly distributed throughout the year with a slight maximum in the spring and again in August.

(156) The prevailing wind direction in Buffalo is the southwest, off the lake. January is the windiest month and a maximum gust of 71 knots occurred in February 1967.

(157) (See Page T-3 for **Buffalo climatological table.**)

Ice

(158) Heavy ice forms in the river, usually in January. A narrow channel is kept open through the ice by tugs, but the ice remains in place because the E end of Lake Erie also freezes over, and the harbor entrance is usually blocked with ice from January to March or April. The ice usually goes out in the spring during a freshet in the river, and the combined effect of the then prevailing strong outflowing currents and the heavy moving ice is at times very great and may last for 2 or 3 days. During this time, the liability of damage to vessels is considerable.

(159) Heavy ice forms in the Buffalo Ship Canal in winter, usually in January. A narrow channel is kept open through the ice by tugs, but the ice remains in place, the same as in the Buffalo River. The ice drifts out on the opening of the entrance channel in March or April, or melts in place, and its breaking up in the spring is not attended with the same liability to damage as in the case of the Buffalo River.

Towage

(160) Tugs to 1,250 hp are available at Buffalo. Arrangements for tugs are made through the Great Lakes Towing Co. dispatcher in Cleveland at 800-321-3663 or on VHF-FM channels 16, 10, 12, and 18A via remote antenna. The tugs' VHF-FM channels include 16, 6, 12, 14, and 18A. At least 4 hours advance notice is requested. City regulations require that all vessels which require the opening of one or more bridges while navigating in the Buffalo River must have the assistance of one or more tugs when approaching and passing these bridges. Vessels navigating stern first are required to have a tug on the stern and a tug on the bow.

(161) Buffalo is a **customs port of entry.**

Quarantine, customs, immigration, and agricultural quarantine.

(162) (See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(163) **Quarantine** is enforced in accordance with the regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

Coast Guard

(164) A **Marine Safety Office** is in Buffalo. (See appendix for address.) Buffalo Coast Guard Station and Group Office are on the S side of the entrance to the Buffalo River.

Harbor regulations

(165) A **speed limit** of 6 mph (5.2 knots) is enforced in Buffalo Harbor except in the Outer Harbor where the speed limit is 10 mph (8.7 knots). (See **33 CFR 162.165 and 207.580,** chapter 2, for regulations.)

(166) Local harbor regulations are established by the Corporation Counsel and enforced by the **harbormaster,** who may be reached at City Hall. Vessels shall not approach or pass any movable bridge at a speed exceeding 3 mph (2.6 knots). Copies of the regulations may be obtained from the Corporation Counsel, City Hall, Niagara Square, Buffalo, N.Y. 14202.

Wharves

(167) Buffalo has more than 60 piers and wharves in the Outer Harbor, the Buffalo River, and the Lackawanna,

Union, and Buffalo Ship Canals. Only the deep-draft facilities are described. (For a complete description of the port facilities, refer to Port Series No. 41, published and sold by the U.S. Army Corps of Engineers. See appendix for address.) The alongside depths for the facilities described are reported depths. (For information on the latest depths, contact the operators.) All of the facilities have direct highway connections, and most have rail connections. Water is available at many of the piers and wharves. General cargo at the port is usually handled by ship's tackle.

Facilities in Lackawanna Canal:

(168) **Gateway Metroport, Lackawanna Canal West Dock:** W side of Lackawanna Canal; 3,900-foot face, 27 feet alongside; deck height, 7½ feet outer section, 12½ feet inner section; open storage for 20,000 tons of limestone; seven storage tanks, 362,310-barrel capacity; receipt and shipment of conventional general cargo and dry bulk commodities; owned and operated by Gateway Trade Center, Inc.

(169) **Gateway Metroport, Lackawanna Canal East Dock:** E side of Lackawanna Canal; 3,975-foot face; 27 feet alongside; deck height, 12½ feet; two electric, traveling, bridge cranes, each with 17-ton clamshell buckets, receiving hopper served by a belt conveyor; 60 acres of open storage for over 3 million tons iron ore, 650,000 tons limestone, and 1 million tons coal; receipt and shipment of conventional general cargo and dry bulk commodities; owned and operated by Gateway Trade Center, Inc.

Facilities in Union Canal:

(170) **Gateway Metroport, Union Canal South Dock:** S side of Union Canal W of highway bridge; 778 feet of berthing space; 22 feet alongside; deck height, 10½ feet; open storage for 400,000 tons of limestone; receipt and shipment of dry bulk commodities; owned and operated by Gateway Trade Center, Inc.

(171) **St. Lawrence Cement Corp.:** N side of Union Canal W of highway bridge; 634 feet of berthing space; 22 feet alongside; deck height, 8 feet; belt conveyor system with shiploading chute and hopper, pipeline extends to 42 storage silos with 115,000-ton capacity; 48 acres open storage; receipt of cement; owned and operated by St. Lawrence Cement Corp.

Facilities in Buffalo Ship Canal:

(172) **Founders Supplies, Inc.:** W side of canal about 1 mile above the entrance; 1,000-foot face; 22 feet alongside; deck height, 8 feet; one crawler-crane with 40-foot boom and clamshell bucket, hopper served by bucket-conveyor extending to two, 1,500 ton (total) storage silos; open storage for 80,000 tons of sand; receipt of sand; owned by Sand Products Corp. and operated by Founders Supplies, Inc.

(173) **Pillsbury Mutual Wharf:** E side of canal about 0.6 above the entrance; 1,520 feet of berthing space; 21 feet alongside; deck height, 8 feet; two traveling unloading towers, 10,000-bushel-per-hour capacity each; one loading tower, 11,000-bushel-per-hour capacity; facility maintained on a stand-by or idle basis; owned by The Pillsbury Co. and operated by The Pillsbury Co. and Gaelic Tugboat Co.

(174) **General Mills Wharf:** E side of canal about 0.2 mile above the entrance; 1,025-foot face; 22 feet alongside; deck height, 8 feet; two marine legs, 25,000-bushel-per-hour unloading rate each; 4-million-bushel grain elevator; receipt of grain; owned and operated by General Mills, Inc.

Facilities in the Buffalo River:

(175) **Lafarge Corp., Buffalo Terminal Upper Wharf:** left bank of river below Ohio Street Bridge; 475-foot face; 20 to 22 feet alongside; deck height, 10 feet; two unloading hoses extend to cement storage silos with 21,000-ton capacity; receipt of cement; owned and operated by Lafarge Corp., Great Lakes Region.

(176) **Con-Agra Buffalo Elevator Wharf:** left bank of river 800 feet above Ohio Street Bridge; 578-foot face; 24 feet alongside; deck height, 8 feet; two unloading towers, 25,000-bushel-per-hour capacity; 3¼-million-bushel grain elevator; receipt of grain; owned and operated by Con-Agra, Inc.

(177) **Pillsbury Standard Elevator Wharf:** right bank of river above Ohio Street Bridge; 875-foot lower face, 19 to 22 feet alongside; 388-foot upper face, 16 to 20 feet alongside; deck height, 8 feet; two traveling towers, 15,000-bushel-per-hour capacity; 5-million-bushel grain elevator; receipt of grain; owned and operated by The Pillsbury Co.

(178) **International Multifoods Corps. Lake and Rail Elevator Wharf:** left bank of river about 800 feet above the Con-Agra Wharf; 345 feet of berthing space N face, 14 to 20 alongside, deck height, 7 feet; 555 feet of berthing space E face, 20 to 24 feet alongside; deck height, 10 feet; two traveling unloading towers, 12,500-bushel-per-hour capacity; 4½-million-bushel grain elevator; receipt of grain; owned and operated by International Multifoods Corp.

(179) **Mobil Oil Corp., Bulk Terminal:** right bank of river about 0.4 mile above South Park Avenue Bridge; 1,470-foot face; 15 to 22 feet alongside; deck height, 12 feet; pipelines to oil storage tanks; receipt of petroleum products, fueling of small vessels; owned and operated by Mobil Oil Corp.

Supplies

(180) Water, provisions, and marine supplies are available at Buffalo. Bunker fuel and diesel fuel are delivered to vessels at their berths by tank vessels. Arrangements should be made through ships' agents. Occasionally tank trucks supply vessels with bunker fuel.

Repairs

(181) There are no facilities for drydocking or hauling out large, deep-draft vessels. Two companies that have no waterfront facilities maintain shops and portable equipment for making above-the-waterline repairs and for installing equipment and machinery.

Small-craft facilities

(182) Erie Basin, close N of the mouth of the Buffalo River, is the site of the city's marina. Transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out facilities, marine supplies, a launching ramp, and minor engine repairs are available. In 1977, depths of 20 feet were reported in the entrance channel and alongside the berths, with 17 feet alongside the gasoline dock. The Buffalo **harbormaster** maintains an office in Erie Basin; telephone, 716–842–0452.

(183) The Niagara Frontier Transportation Authority operates a small-craft basin on the E side of Buffalo Outer Harbor about 2.3 miles SE of the mouth of Buffalo River. Transient berths, gasoline, water, ice, electricity, marine supplies, a launching ramp, and engine repairs are available. In August 2001, a depth of 4 feet was reported in the entrance.

Measured course

(184) A measured mile, statute and nautical, is marked on the E face of the breakwater at the N end of the Outer Harbor.

Communications

(185) Buffalo has excellent rail and highway connections with major United States and Canadian cities. Greater Buffalo International Airport is 8 miles ENE of the city.

Chart 14822

(186) From **Stony Point** at the S end of Buffalo Harbor, the shoreline trends S for about 3.5 miles and is obstructed by shallow patches extending 1 mile offshore.

(187) A diked disposal area on the W side of Stony Point begins at South Buffalo Pierhead Light and curves SW to a point on shore about 0.5 mile S. The N end of the dike is marked by a light.

(188) S of the disposal area, a **dumping ground** extends about 0.5 mile from the shoreline for about 1 mile. A least depth of 6 feet was reported in 1977.

(189) About 3.5 miles S of Stony Point, the shoreline turns SW and continues this trend, with some southerly recessions and slight irregularities, for about 210 miles to a point about 3 miles E of Huron, Ohio, the southernmost point on the lake. The hydrography along this entire reach is generally of a uniform character, with no shoals, other than Seneca Shoal, at any great distance offshore, and the land varies from a low character to moderate bluffs of 60 to 120 feet high. The usual routes between ports are well out in deep water, and there are no natural obstacles which make navigation especially hazardous. From the bend S of Stony Point for the first stretch of 12 miles to Sturgeon Point, there are a number of submerged and exposed cribs as much as 0.6 mile offshore.

(190) **Seneca Shoal**, about 4.4 miles SW of Stony Point, has a least depth of 12 feet and is marked on its NW edge by a lighted buoy.

Chart 14823

(191) Between **Sturgeon Point** (42°41.4'N., 79°02.9'W.) and **Silver Creek,** about 12 miles SW, the hydrography is less regular. W of **Big Sister Creek,** about 2 miles from Sturgeon Point, an unmarked boulder ledge with a least depth of 3 feet extends 2 miles offshore.

(192) **Cattaraugus Creek** is about 9.5 miles SW of Sturgeon Point. A dredged channel protected by breakwaters leads to a small turning basin on the N side of the channel just inside the breakwaters, thence to the first railroad bridge, about 0.6 mile above the mouth of the creek. The ends of the breakwaters are marked by lights. The channel inside the breakwaters is narrow and unmarked with numerous turns. Because of changing conditions, mariners are advised to seek local knowledge before transiting the creek. Several marinas in the creek provide transient berths, gasoline, diesel fuel, water, ice, electricity, marine supplies, towing, and launching ramps. Mobile lifts to 20 tons are available for hull and minor engine repairs. In 1977, depths of 2 to 10 feet were reported alongside the berths.

(193) Between Cattaraugus Creek and Silver Creek, a stony ledge extends 1.5 miles from shore. From Silver Creek, the shoreline trends generally SW for 10 miles to Dunkirk, and shoal water extends about 0.8 mile offshore.

(194) **Dunkirk Harbor**, about 35 miles SW of Buffalo Harbor, is in an indentation of the shore between **Battery Point** on the E and **Point Gratiot** on the W. The harbor serves the town of **Dunkirk, N.Y.**

(195) An unmarked **dumping ground** with a least reported depth of 35 feet is 1 mile NE of Point Gratiot.

(196) **Dunkirk Light** (42°29.6'N., 79°21.2'W.), 82 feet above the water, is shown from a white square tower with an attached dwelling on Point Gratiot.

Channels

(197) The harbor is entered from Lake Erie through a dredged entrance channel NE of Point Gratiot. The channel leads SE between a pier on the W and a detached breakwater on the E to the harbor basin off the Municipal Pier. The pier and breakwater are marked on the channel ends by lights, and the channel limits are marked by buoys. In April 2004, the controlling depths were 15.0 feet from deep water in the lake to Buoy 10 (except for shoaling to 10.4 feet in the right outside quarter of the channel just N of the W pier light), thence 8.0 feet to the face of the Municipal Pier.

(198) Inside the harbor, there are breakwaters E and W of the N end of the Municipal Pier. A dredged access channel extends S along the E and W sides of the Municipal Pier and along the S sides of the E and W breakwaters. The breakwaters are marked by lights. In April 2004, the controlling depths were 5.3 feet in the access channel along the E side of the Municipal Pier, thence 4.4 feet in the channel just S of the E breakwater; the access channel and channel just S of the breakwater to the W of the Municipal Pier had a controlling depth of 5.6 feet (except for lesser depths to 3 feet near the W end.)

Anchorages

(199) Because of the rock bottom, anchorage in the harbor is poor. The shallow water does not permit mooring to the breakwater.

Dangers

(200) Vessels entering the harbor should hold to the E to avoid the shoals along the SW side of the channel. As there is no breakwater protection on the E side, the harbor is subject to severe wave action from E storms.

Small-craft facilities

(201) In 1977, the **harbormaster** reported that the Dunkirk Public Dock at the foot of Central Avenue was in an unsafe condition and was no longer being used by commercial vessels. Persons desiring to load or unload cargo at the dock should contact the harbormaster or the city engineer for additional information. The dock has water and electricity available for transient small craft. In 1977, depths of 5 to 8 feet were reported along the N end of the E face.

(202) Small-craft facilities SW of the city dock provide gasoline, diesel fuel, water, sewage pump-out, marine supplies, and a launching ramp. Mobile lifts to 1½ tons are available for emergency hull and minor engine repairs.

(203) Between Gratiot Point and **Van Buren Point** (42°27.2'N., 79°25.0'W.), 4.3 miles SW, a rocky bank with less than 20 feet of water extends 1 mile from shore. From Van Buren Point, the shoreline trends SW for about 12 miles to Barcelona Harbor. The shore is clear to within 0.7 mile except just W of Van Buren Point where depths to 19 feet extend 1.2 miles off.

(204) **Barcelona Harbor**, just E of the mouth of **Chautaugua Creek,** is about 17 miles SW of Dunkirk. Although it is not protected from E winds or strong winds from any direction, it is sometimes used as a harbor of refuge by light-draft vessels. A large white building with a red roof is prominent on the W side of the harbor entrance.

Channels

(205) The harbor is entered from Lake Erie through a dredged entrance channel between two converging breakwaters to a harbor basin just inside. A light marks the W breakwater and the outer end of the E breakwater. In May 2002, the controlling depth was 7.8 feet in the channel (except for shoaling to 5 feet along the NW edge of the channel from the outer end of the W breakwater to the West Breakwater Light), thence depths of 6 to 8 feet were in the basin with lesser depths along the edges.

Small-craft facilities

(206) An unmarked channel leads from the harbor basin SE to the city dock. In 1977, depths of 4 feet were reported in the channel and along the N 200 feet of the W face of the dock. A marina on the SW side of the harbor provides transient berths, gasoline, diesel fuel, water, ice, electricity, and marine supplies. Mobile lifts to 9 tons are available for hull and gasoline engine repairs. In 1977, depths of 4 feet were reported alongside the berths.

Charts 14823, 14824, 14828

(207) Erie Harbor is about 28 miles SW of Barcelona. The intermediate shore has no shoals beyond a distance of about 0.7 mile. The **State boundary** between New York and Pennsylvania is about 10 miles SW of Barcelona.

Charts 14824, 14828, 14835

(208) **Presque Isle** (42°10.4'N., 80°04.8'W.) is an irregularly shaped peninsula forming nearly landlocked Erie

Harbor. The peninsula is connected to the mainland by a narrow neck at the W end and broadens as it curves around to the NE and E. The entrance to Erie Harbor is on the S side of the E end of the peninsula. Presque Isle State Park is on the peninsula. **Presque Isle Light** (42°09.9'N., 80°06.9'W.), 73 feet above the water, is shown from a white square tower with an attached red dwelling on the NW shore of the peninsula. Numerous shore protection structures extend lakeward from the lakeside of the peninsula. Small-craft operators are cautioned to keep 500 feet offshore in the vicinity of these structures.

(209) **Erie Harbor**, about 78 miles SW of Buffalo, is in **Presque Isle Bay,** enclosed from the lake by Presque Isle. The bay opens to the E and is about 4.5 miles long and 1.5 miles wide. Erie Harbor, serving the city of **Erie, Pa.,** is in the SE part of the bay.

(210) Principal commerce at the port is in limestone, sand, salt, petroleum products, coke, steel products, pig iron, other alloys, gravel, clay, and general cargo in the domestic trade.

Prominent features

(211) The stacks at the paper plant 1 mile SE of Erie Harbor Pierhead Light and the lighted stack 2.2 miles ESE of the light are prominent.

(212) **Erie Harbor Pierhead Light** (42°09.4'N., 80°04.3'W.), 42 feet above the water, is shown from a black and white horizontally banded square tower on the outer end of the N entrance pier. A fog signal is at the light.

Channels

(213) A Federal project provides for a dredged entrance channel leading SW from deep water in Lake Erie between two parallel piers to a harbor basin and three adjacent turning basins in Presque Isle Bay. The N pier is marked by a light at its outer end, and the S pier by two lights near its midlength which form a **235°** range. The channel limits are marked by lighted and unlighted buoys. Two lights near the inner end of the N pier form a **054°30'** range. The Federal project depths are 29 feet in the entrance channel, 28 feet in Harbor Basin, 27 feet in Approach Turning Basin, 21 feet in Erie Turning Basin, and 18 feet in Harbor Turning Basin. (See Notice to Mariners and latest edition of charts for controlling depths.)

(214) An approach channel marked by buoys leads SW from the harbor basin to a turning basin off the piers on the S side of the bay about 2.6 miles SW of Erie Harbor Pierhead Light. The channel and turning basin are not maintained.

(215) **Misery Bay** is an indentation in the S side of Presque Isle N of Erie Harbor Entrance Channel. The bay has depths of 5 to 10 feet except for shoaling along the edges. A rock which bares is on the E side of the bay on the S side of the channel leading to **Horse Shoe Pond.**

Anchorages

(216) Good anchorage is in the center of Presque Isle Bay in depths of 12 to 22 feet, mud bottom. Local regulations prohibit vessels from anchoring in any channel or mooring to channel markers and buoys. Vessels over 100 feet long or over 50 tons are prohibited from anchoring within 500 feet of the city water intake or sewer pipelines. The city water intake extends NW across Presque Isle Bay and is marked by buoys.

Dangers

(217) An unmarked submerged pier, covered 1 to 2 feet, extends about 2,000 feet from shore 0.8 mile SSE of Erie Harbor Pierhead Light.

Weather, Erie and vicinity

(218) Erie, PA, located on the southeast shore of Lake Erie and in extreme northwestern Pennsylvania, averages about three days each year with maximum temperatures in excess of 90°F (32.2°C). July is the warmest month with an average high of 79°F (26.1°C) and an average minimum of 62°F (16.7°C). January is the coolest month with an average high of 33°F (0.6°C) and an average minimum of 20°F (-6.7°C). The highest temperature on record for Buffalo is 100°F (37.8°C) recorded in June 1988 and the lowest temperature on record is -18°F (-27.8°C) recorded in January 1994. About 124 days each year sees temperatures below 32°F (0°C) and an average nine days each year records temperatures below 5°F (-15°C). Every month has seen temperatures below 50°F (10°C) and every month except July, August, and September has recorded temperatures at or below freezing (0°C).

(219) The average annual precipitation for Erie is 40.5 inches (1029 mm) which is fairly evenly distributed throughout the year. Precipitation falls on about 223 days each year. The wettest month is September with 4.1 inches (104 mm) and the driest, February, averages only 2.3 inches (58 mm). An average of 36 thunderstorm days occur each year with July and August being the most likely months. Snow falls on about 91 days each year and averages about 83 inches (2108 mm) each year. December and January each average greater than 20 inches (508 mm) per year while February averages 16 inches (406 mm). One foot or greater (>305 mm) snowfalls in a 24-hour period have occurred in each month November through March and 23 inches (584 mm) fell in one 24-hour period during November 1956. About 17 days each year has a snowfall total greater than 1.5 inches (38 mm) and snow has fallen in

every month except June, July, August, and September. Fog is present on average 140 days each year and is evenly distributed throughout the year with a slight maximum in March.

(220) The prevailing wind direction in Erie is south from May through November, south-southwest in December and January, and west-southwest from February through April. The winter season is the windiest with each month, December through April, averaging 12 knots. The highest gust on record was a west wind of 68 knots recorded in January 1978.

(221) (See Page T-4 for **Erie climatological table.**)

Towage

(222) Tugs for Erie are available from Conneaut or Cleveland. (See Towage under Conneaut and Cleveland.)

(223) Erie is a **customs port of entry.**

Quarantine, customs, immigration, and agricultural quarantine

(224) (See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(225) **Quarantine** is enforced in accordance with the regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

Coast Guard

(226) Erie Coast Guard Station is on the N side of the entrance channel.

Harbor Regulations

(227) **Harbor Regulations** are established by the Erie-Western Pennsylvania Port Authority and enforced by the **harbormaster.** A **speed limit** of 3 mph (2.6 knots) is enforced in the East and West Canal Basins and within 300 feet of the shoreline, and 5 mph (4.4 knots) elsewhere in the harbor. Copies of the regulations may be obtained from the Port Authority Office, 17 W. Dobins Landing, Erie, PA 16501, telephone (814) 455-7557.

Wharves

(228) The piers and wharves of Erie Harbor are along the S side of Presque Isle Bay. Only the deep-draft facilities are described. (For a complete description of the port facilities, refer to Port Series No. 42, published and sold by the U.S. Army Corps of Engineers. See appendix for address.) The alongside depths for the facilities described are reported depths. (For information on the latest depths, contact the operator.) All the facilities described have highway and rail connections. Water and electrical shore-power connections are available at some of the piers and wharves.

(229) General cargo at the port is usually handled by ship's tackle; special handling equipment, if available, is mentioned in the description of the particular facility. Cranes to 300 tons are available at the Erie International Marine Terminal.

(230) **Erie International Marine Terminal, Berths No. 1, 2, and 3:** S side of entrance channel at inner end of S pier; 1,450 feet of berthing space; 23 to 26 feet alongside; deck height, 8½ feet; 95,300 square feet covered storage; 22 acres open storage; 300-ton fixed crane; two 110-, two 200-, and one 230-ton crawler cranes; receipt and shipment of general and containerized cargo, dry bulk commodities, vehicles, steel products, and lumber; owned by Port Authority, Erie-Western Pennsylvania and operated by Codan Corp.

(231) **Erie Dry Bulk Wharf:** (42°08'25"N., 80°05'00"W.); 1,220-foot face; 24 to 22 feet alongside; deck height, 7½ feet; about 5.5 acres open storage; use of cranes from Erie Sand and Gravel Company Dock; receipt of salt and sand; owned by Port Authority, Erie-Western Pennsylvania and operated by Erie Sand and Gravel Co.

(232) **Erie Sand and Gravel Company Dock:** (42°08'13"N., 80°05'38"W.); 305-foot N face, 19 to 21 feet alongside; 1,031-foot E face, 21 to 14 feet alongside; deck height, 6 feet; open storage for about 100,000 tons of material; two crawler cranes, one 30-ton mobile crane, and three 5-cubic yard front-end loaders; receipt of sand and limestone; owned and operated by Erie Sand and Gravel Co.

Supplies

(233) By special arrangement, local dealers make tank truck deliveries of bunker fuel to vessels at the berths. Diesel fuel, marine supplies, and provisions are available at Erie.

Repairs

(234) The port has no active drydock or major repair facilities for deep-draft vessels. The nearest such facilities are at Lorain, Ohio. Erie Marine Enterprises maintains a pier and graving dock in the SE part of the harbor for vessel outfitting, conversion, and occasional repairs. The pier is 1,115 feet long with 12 to 28 feet alongside. The graving dock is 1,250 feet long, 120 feet wide at the entrance, and has a depth of 21 feet over the sill. Mobile cranes to 125 tons and yard shops are available.

Small-craft facilities

(235) Numerous marinas and boatyards in **Canal Basin** on the S side of Erie Harbor provide transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out, and marine supplies. Mobile lifts to 30 tons, fixed lifts to 60 tons, and marine railways to 100 tons

are available for hull, engine, and electronic repairs. In 1990, depths of 3 to 12 feet were alongside the gasoline docks.

(236) Presque Isle State Park Marina is in a dredged basin on the NW side of Presque Isle Bay. The entrance to the basin is marked by private lights and a **339°45'** lighted range. In 1977, the reported controlling depths were 9 feet on the centerline in the entrance, 8 feet in the basin except for an isolated 6-foot spot in the E part, and 8 feet alongside the berths. Gasoline and a launching ramp are available. Mobile lifts to 10 tons are available for emergency propellor and minor repairs.

(237) A municipal marina, protected by breakwaters, is S of the Erie Harbor entrance channel. The marina entrance is marked by private lights.

Communications

(238) Erie is connected by air, rail, and highway to other major United States and Canadian cities. Passenger ferries operate between the city of Erie and the SE side of Presque Isle.

Charts 14824, 14828

(239) From the neck of Presque Isle, the shoreline extends about 23 miles SW to Conneaut Harbor. The shore in this stretch has the appearance of low wooded hills with interspersed communities. Deep water is about 0.8 mile offshore.

(240) The **State boundary** between Pennsylvania and Ohio is about 1.5 miles E of Conneaut.

(241) **Conneaut Harbor**, serving **Conneaut, Ohio,** is about 107 miles SW of Buffalo and about 73 miles NE of Cleveland. It comprises an outer harbor sheltered by breakwaters and an inner harbor in the lower part of the **Conneaut River.**

(242) A large unmarked **dumping ground** with a least depth of 41 feet in 1976 is 5 miles NW of the harbor entrance.

Prominent features

(243) Green water tanks 1.7 and 2.8 miles SSW of the harbor are prominent.

(244) **Conneaut Harbor West Breakwater Light** (41°58'48"N., 80°33'30"W.), 80 feet above the water, is shown from a square pyramidal tower on the outer end of the breakwater.

Channels

(245) The harbor is entered from natural deep water in Lake Erie between converging breakwaters to an outer harbor channel inside the breakwaters. A dredged channel leads from the SE end of the outer harbor upstream in Conneaut River for about 0.4 mile to the wharves on either side of the river. Lights mark the outer ends of the breakwaters and the piers at the river mouth. In April 2004, the controlling depths were 21.1 feet (25.7 feet at midchannel) in the outer harbor channel (except for lesser depths in the S and W corners), thence 21.4 feet in the dredged river channel.

(246) A privately dredged turning basin in the river immediately above the limit of the dredged channel had a controlling depth of 20 feet in 1979 except for shoaling along the edges. A private slip extending S from the turning basin has a least depth of 17 feet near the S end.

Anchorages

(247) Vessels are reported to anchor W of the W breakwater in 28 to 38 feet, but the holding ground is poor in shale bottom.

Dangers

(248) Vessels approaching the harbor from the E are cautioned to not mistake the lights on the piers at the river mouth for the breakwater lights. Use of the gap in the W breakwater should be strictly avoided, because of a large shoal area in the outer harbor W of the municipal pier.

(249) In December 1978, a large anchor was reported lost in the E part of the outer harbor in about 41°58'33.3"N., 80°33'03.8"W.

Bridges

(250) An overhead cable crossing the SE side of the privately dredged turning basin in the river has a clearance of 124 feet. An inoperative swing bridge with a clearance of 3 feet crosses the Conneaut River just above this cable. An overhead cable with a clearance of 122 feet crosses the entrance to the slip that extends S from the privately dredged turning basin.

Towage

(251) Tugs to 1,250 hp are available in Conneaut Harbor. Arrangements for tugs are made through the Great Lakes Towing Co. dispatcher in Cleveland at 800-321-3663 or on VHF-FM channels 16, 10, 12, and 18A via remote antenna. The tugs' VHF-FM channels include 16, 6, 12, 14, and 18A. At least 12 hours advance notice is requested.

(252) Ashtabula/Conneaut is a **customs port of entry.**

Quarantine, customs, immigration, and agricultural quarantine

(253) (See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(254) **Quarantine** is enforced in accordance with the regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

Harbor regulations

(255) A **speed limit** of 6 mph (5.2 knots) is enforced in the harbor except in the outer harbor where the speed limit is 10 mph (8.7 knots). (See **33 CFR 162.160 and 207.570,** chapter 2, for regulations.)

Wharves

(256) The deep-draft facilities at Conneaut Harbor are in the inner harbor inside the mouth of the Conneaut River. (For a complete description of the port facilities, refer to Port Series No. 42, published and sold by the U.S. Army Corps of Engineers. See appendix for address.) The alongside depths for the facilities described are reported depths. (For information on the latest depths, contact the operator.) All the facilities described have rail connections and all but the Pittsburgh and Conneaut Dock Co., Dock No. 4, have highway connections. All the described facilities have water and electrical shore-power connections.

(257) **Pittsburgh and Conneaut Dock Co., Dock No. 1 Extension:** (41°58'12"N., 80°32'58"W.); 1,974-foot face; 22 to 27 feet alongside; deck height, 8½ feet; open storage for 600,000 tons of limestone; two front-end loaders; receipt of limestone; owned by Bessemer and Lake Erie Railroad Co. and operated by the Pittsburgh & Conneaut Dock Co.

(258) **Pittsburgh and Conneaut Dock Co., Dock No. 3**: E side of slip S of the turning basin; 1,250-foot face; 27 to 28 feet alongside; deck height, 8½ feet; one fixed coal loading tower, capacity 7,000 tons per hour; one slewing coal loader, capacity 4,000 tons per hour; conveyor system for 3½-million-ton open storage area; shipment of coal; occasional bunkering of vessels; owned by Bessemer and Lake Erie Railroad Co. and operated by The Pittsburgh & Conneaut Dock Co.

(259) **Pittsburgh and Conneaut Dock Co., Dock No. 4**: E side of river opposite Dock No. 1 extension; 2,078 feet of berthing space; 27 to 28 feet alongside; deck height, 8½ feet; five 17-ton hulett-type ore unloaders, capacity 875 tons per hour each; open storage for 3½ million tons of ore; receipt of iron ore and limestone; owned and operated by Pittsburgh and Conneaut Dock Co.

Supplies

(260) Diesel oil by tank truck and some marine supplies and provisions are available at Conneaut.

Small-craft facilities

(261) The Municipal Pier, about 0.4 mile SW of the river mouth, can provide gasoline, diesel fuel, and electricity. The Conneaut Port Authority operates a small-craft basin NE of the Municipal Pier. The entrance to the basin is marked by private lights. In 1977, the reported controlling depth was 5 feet in the entrance with 3 to 18 feet alongside the berths. Transient berths, gasoline, diesel fuel, water, ice, electricity, marine supplies, and launching ramps are available.

Communications

(262) Conneaut has good highway and rail connections.

Charts 14824, 14828, 14825

(263) From Conneaut to Ashtabula, 13.5 miles SW, there is deep water about 0.8 mile offshore. The shore is a series of low wooded hills with interspersed communities.

(264) Two wrecks, covered 35 feet, are 1.5 miles offshore about 3.9 miles ENE of the entrance to Ashtabula Harbor.

Charts 14825, 14828, 14836

(265) **Ashtabula Harbor** is about 119 miles SW of Buffalo and about 59 miles NE of Cleveland. It comprises an outer harbor, the navigable portion of the **Ashtabula River** for about 2 miles above the mouth, and two large slips opening directly into the lake under the protection of the breakwaters.

(266) The major commodities handled at the port are limestone, iron and other ores, coal and other dry bulk commodities, pig iron, iron products, raw rubber, and general cargo in the domestic trade.

(267) Two unmarked **dumping grounds,** with least reported depths of 35 feet, are 2.4 miles N and 2 miles NE of the harbor entrance.

Prominent features

(268) The lighted stacks 1.5 miles SE and 1.8 miles ESE of the harbor entrance are conspicuous. The silos on the W side of the river mouth are also prominent.

(269) **Ashtabula Harbor Light** (41°55.1'N., 80°47.8'W.), 51 feet above the water, is shown from a white cylindrical tower on a white square house near the outer end of W breakwater.

Channels

(270) The harbor is entered from Lake Erie through a dredged entrance channel between converging breakwaters that are marked at the outer ends by lights. Inside the breakwaters, the outer harbor divides into E and W channels with a central turning basin. The limits of the dredged areas in the outer harbor are marked

by buoys. The W channel leads along the W breakwater and around the W end of an inner detached breakwater to the mouth of the Pinney Minnesota Slip and to the mouth of the Ashtabula River and thence upstream for about 2 miles; a turning basin is 0.3 mile below the head of the project. A light marks the W end of the inner detached breakwater. The E channel leads SE to a basin off the entrance to two large slips. A triangular turning basin is between the two outer channels on the N side of the inner detached breakwater.

(271) In April-May 2002, the midchannel controlling depth was 25.5 feet in the W channel of the outer harbor to the southern limit of the triangular turning basin, thence 18.9 feet at midchannel to the mouth of the river, thence 19.9 feet to the mouth of Pinney Minnesota Slip, thence 16.8 feet in the river to a point about 2,000 feet above the mouth, thence 9.8 feet in the W half and 4.4 feet in the E half of the channel to the Fifth Street bridge, thence 9.2 feet in the N half and 1.4 feet in the S half of the channel to Ashtabula Yacht Club, thence 4.6 feet in the W half of the channel with shoaling to bare in the E half to the turning basin, thence 1.7 feet to the head of the project; the turning basin had depths of 1 to 4 feet.

(272) In May 2002, the controlling depth in the E channel of the outer harbor was 19.6 feet (25.2 feet at midchannel) to the basin; the basin had depths of 26.5 feet in the center gradually decreasing to 17 feet to NE and 15 feet to the E with lesser depths along the E edge. The controlling depth in the triangular turning basin in the outer harbor N of the detached breakwater was 15.4 feet except for a 12-foot spot in the SE corner.

Anchorages

(273) Deep-draft vessels normally anchor about 2 miles ENE or W of the breakwater entrance in 35 to 45 feet, sand and mud bottom.

Bridges

(274) An overhead conveyor with a clearance of 100 feet crosses the Ashtabula River about 0.5 mile above the mouth. An overhead power cable with a clearance of 120 feet is about 0.1 mile N of the overhead conveyor. The Fifth Street bridge about 0.15 mile upstream from the conveyor has a bascule span with a clearance of 11 feet. The ConRail bridge about 1.5 miles above the river mouth has a bascule span with a clearance of 11 feet. An overhead cable on the N side of the bridge has a clearance of 131 feet. (See **33 CFR 117.1 through 117.59 and 117.847**, chapter 2, for drawbridge regulations.)

Local bridge regulations

(275) **147.35 Bridges to be Lighted.**

(276) All bridges over the Ashtabula River in the City of Ashtabula shall be lighted in accordance with the regulations of the United States Coast Guard, and lights shall be visible on a dark night with clear atmosphere at least one (1) nautical mile or about 2,000 yards.

(277) **147.36 Vessels Passing through Bridges.**

(278) All vessels navigating the harbor when passing any bridge shall be moved as expeditiously as is consistent with a proper movement in the river, and shall not be anchored or fastened to interfere with the opening or closing of any bridge.

(279) **147.37 One Vessel Tow.**

(280) It shall be unlawful for any person to cause any vessel to tow more than one vessel at a time through any movable bridge in the harbor, providing that this shall not be construed as applying to scows or yachts.

(281) **147.41 Duty of Bridge Operators.**

(282) It shall be the duty of the bridge operator in all cases to report to his immediate superior and the Harbor Master any infraction of this article.

(283) **147.42 Penalty for Violation.**

(284) Any master, owner or person in possession, charge or control of any vessel, or any other person, firm or corporation who shall violate any of the provisions of this article shall be fined not less than fifty dollars ($50.00) nor more than five hundred dollars ($500.00).

Towage

(285) Tugs to 1,400 hp are available at Ashtabula. Arrangements for tugs are made through the Great Lakes Towing Co. dispatcher in Cleveland at 800-321-3663 or on VHF-FM channels 16, 10, 12, and 18A via remote antenna. The tugs' VHF-FM channels include 16, 6, 12, 14, and 18A. At least 6 hours advance notice is requested.

(286) Ashtabula/Conneaut is a **customs port of entry.**

Quarantine, customs, immigration, and agricultural quarantine

(287) (See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(288) **Quarantine** is enforced in accordance with the regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

Coast Guard

(289) Ashtabula Coast Guard Station is on the E side of the Ashtabula River about 0.5 mile above the mouth.

Harbor regulations

(290) A **speed limit** of 6 mph is enforced in the harbor except in the outer harbor where the speed limit is 10 mph (8.7 knots). (See **33 CFR 162.160 and 207.570,** chapter 2, for regulations.)

(291) Local harbor regulations are established by the City Council and enforced by the **harbormaster** who may be reached at the Port Authority Office. The harbormaster controls vessel movement and berthage in the harbor. Local regulations specify a **speed limit** of 6 mph (5.2 knots) in the harbor for vessels over 100 feet long. Copies of the regulations may be obtained from Port Authority Office, 529 Prospect Road, Ashtabula, Ohio 44004.

Wharves

(292) The wharves of Ashtabula Harbor are on the S side of the outer harbor and along both sides of the Ashtabula River. Only the deep-draft facilities are described. (For a complete description of the port facilities, refer to Port Series No. 42, published and sold by the U.S. Army Corps of Engineers. See appendix for address.) The alongside depths for the facilities described are reported depths. (For information on the latest depths, contact the operator.) All the facilities described have highway connections, and all except the R. W. Sidley Wharf have railway connections. Water and electrical shore-power connections are available at most of the facilities.

Facilities in the Ashtabula River:

(293) **Consolidated Rail Corp., Coal Dock No. 10:** W side of the river inside the mouth; 2,800-foot face; 14 to 27 feet alongside; deck height, 7 feet; one traveling coal loader, capacity 8,000 tons per hour; open storage for 1½ million tons of coal; shipment of coal; owned and operated by Consolidated Rail Corp.

(294) **R. W. Sidley Wharf**: E side of the river 0.6 mile above the mouth; about 350 feet of berthing space; 15 to 17 feet alongside; one crawler crane; one mobile front-end loader; open storage for 60,000 tons of limestone; receipt of limestone; owned and operated by R. W. Sidley, Inc.

Facilities in the outer harbor:

(295) **Pinney Dock & Transport Co., Dock No. 1 Extension:** S side of outer harbor, E of river mouth and outer portion of W side of Minnesota Slip; 1,030-foot N face, 17 to 25 feet alongside; 1,165-foot E face, 27 feet alongside; deck height, 7 feet; open storage for 1 million tons of iron ore; receipt of iron ore; owned by Consolidated Rail Corp. and operated by Pinney Dock & Transport Co., Inc.

(296) **Consolidated Rail Corp., Dock No. 2 Extension:** S side of outer harbor, inner portion of E side of Minnesota Slip; 1,198-foot face; 27 feet alongside; deck height, 7 feet; one front-end loader and one traveling

bridge crane with 15-ton bucket; open storage for 1 million tons of iron ore; receipt of iron ore; owned and operated by Consolidated Rail Corp..

(297) **Pinney Dock & Transport Co., Dock Nos. 1 and 2:** W and E sides of Slip No. 1, about 0.5 mile E of the river mouth; Dock Nos. 1 and 2, 2,000-foot face; 28 to 30 feet alongside; deck height, 8 feet; 10 mobile front-end loaders; open storage for about 2 million tons in rear of Docks 1, 2, and 3; receipt of sand, potash, quartz, limestone, and manganese ore; owned and operated by Pinney Dock & Transport Co., Inc.

(298) **Pinney Dock & Transportation Co., No. 3:** W side of Slip No. 2, about 0.6 mile E of the river mouth; 2,000-foot face, 27 feet alongside; deck height, 8 feet; use of mobile equipment from Dock No. 1; receipt of sand, quartz, limestone, and manganese ore; owned and operated by Pinney Dock & Transport Co., Inc.

(299) **Pinney Dock & Transportation Co., Dock No. 4:** E side of Slip No. 2: 2,000-foot face; 27 feet alongside; deck height, 7 feet; two 45-ton gantry cranes; use of mobile equipment from Dock No. 1; 131,000 square feet covered storage; about 5 acres open storage; receipt and shipment of general cargo, receipt of raw titanium ore, china clay, pig iron, newsprint, lumber, raw rubber, and scrap metal; owned and operated by Pinney Dock and Transport Co., Inc.

Supplies

(300) Diesel oil by tank truck and limited marine supplies and provisions are available at Ashtabula.

Repairs

(301) Three companies in Ashtabula make above-the-waterline repairs and install equipment and machinery for vessels at berth in the harbor.

Small-craft facilities

(302) Several marinas on the Ashtabula River provide transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out, marine supplies, and a launching ramp. Mobile lifts to 40 tons are available for hull, engine, and electronic repairs. In 1977, depths of 8 to 16 feet were reported alongside the berths.

Communications

(303) Ashtabula is served by ConRail and Norfolk Southern Railway, and has good highway connections.

Charts 14825, 14828, 14829

(304) From Ashtabula SW for 27 miles to Fairport, the shore continues as a series of low wooded hills and small communities. Deep water is about 1 mile offshore. A sunken wreck, covered 10 feet, is about 0.6 mile offshore about 15 miles SW of Ashtabula. A boulder, covered 15 feet, is about 3 miles ENE of the entrance to Fairport Harbor.

Charts 14825, 14829, 14837

(305) **Fairport Harbor** is about 29 miles NE of Cleveland Harbor. It comprises an outer harbor, and an inner harbor formed by the lower 1 mile of the **Grand River.**

(306) An unmarked **dumping ground** with a least reported depth of 35 feet is 3.5 miles NNE of the harbor entrance.

Prominent features

(307) The stacks and tanks of a chemical plant 1.3 miles SE of the harbor entrance are very prominent from offshore.

(308) **Fairport Harbor West Breakwater Light** (41°46.1'N., 81°16.9'W.), 56 feet above the water, is shown from a white square tower on the corner of a square building about 500 feet from the outer end of the W breakwater. A fog signal is at the light.

Channels

(309) The harbor is entered from Lake Erie through a dredged channel from deep water in the lake between two converging breakwaters to an outer harbor basin. From its inner end, the E breakwater turns E and parallels the shore for about 1 mile. Lights mark the outer ends of the breakwaters and the E end of the E breakwater. From the outer harbor basin, the mouth of the river is entered between parallel piers, marked at the outer ends by lights, and the channel extends upstream for 1.5 miles. There is a turning basin on the W side of the channel about 1 mile above the mouth. The areas on the E and W sides of the entrance channel in the outer basin are not maintained.

(310) In April 2004, the controlling depths were 21 feet in the left half, with lesser depths to 17.8 feet along the NE and SE edges, and 9.5 feet in the right half of the entrance channel to the piers at the rivers mouth, thence 18.2 feet to the turning basin (except for lesser depths to 15.0 feet in the left half of the channel opposite the basin); the turning basin had depths of 15.0 to 18.0 feet, thence 13.0 feet to the upstream limit of the project (except for lesser depths to 7.0 feet along the W edge of the channel.) The areas E and W of the channel limits, within the outer basin limits, have general depths of 9 to 20 feet.

Structures Across Grand River at Fairport
Miles above West Breakwater Light
****Clear width in feet proceeding upstream***

No.	Location and Name	Kind	Miles*	Clear width in feet of draw or span openings**			Clear height in feet above Low Water Datum	Remarks
				Right	Left	Center		
1	Overhead cable	Power	1.32				120	
2	Overhead cables	Power	2.50				15	Note 1.
3	CSX RR bridge	Railroad	2.73			72	20	Fixed.
4	Overhead cable	Power	2.74				40	
5	High St. bridge	Highway	2.76	115	115		10	Fixed
6	Overhead cable		2.77				23	
7	St. Clair St. bridge	Highway	3.24			90	15	Fixed.

Note 1.–Cables cross the river from the N bank to an island at midstream.

Dangers

(311) A wreck, covered 30 feet, is about 0.6 mile NW of the breakwater entrance. In June 1986, a sunken wreck was reported in the harbor approach in 41°46.3'N., 81°16.9'W. A shoal that extends NW from the N end of the W breakwater tends to encroach the W side of the approach channel. Deep-draft vessels should avoid favoring the W channel limit when entering or leaving the harbor. At times a very strong current past the river mouth pierheads makes it difficult and dangerous for unaided vessels to enter the river channel.

(312) A wreck, covered 6 feet, is in the outer harbor basin about 1,000 feet E of East Pier Light in about 41°45'41"N., 81°16'35"W.

(313) Mariners are cautioned to avoid dragging anchor over the submerged pipeline just above the river mouth. The harbormaster reports that vessels sometimes scrape the pipeline during low water conditions.

(314) The E end of the E breakwater may become submerged during certain weather conditions. The center pier abutment of a former railroad swing bridge, about 1.72 miles above the river entrance, has been removed to about 4 feet below water level; mariners are advised to use extreme caution when transiting the area.

Towage

(315) Tugs for Fairport Harbor are available from Ashtabula or Cleveland. (See Towage under Ashtabula and Cleveland.)

(316) Fairport Harbor is a **customs station.**

Quarantine, customs, immigration, and agricultural quarantine

(317) (See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(318) **Quarantine** is enforced in accordance with the regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

Coast Guard

(319) Fairport Harbor Coast Guard Station is on the W side of the river just inside the mouth.

Harbor Regulations

(320) **Harbor Regulations** are enforced by the **harbormaster** who may be reached through the Chief of Police, 220 3rd Street, Fairport Harbor, Ohio 44077. **Speed limits** of 6 mph (5.2 knots) and 10 mph (8.7 knots) are enforced in Grand River and in the outer harbor, respectively. (See **33 CFR 162.160 and 207.570,** chapter 2, for regulations.) Copies of the local regulations may be obtained from Village Hall, 220 3rd Street, Fairport Harbor, Ohio 44077.

Wharves

(321) Fairport Harbor has numerous wharves and docks in Grand River. Only the deep-draft facilities are described. (For a complete description of the port facilities, refer to Port Series No. 42, published and sold by the U.S. Army Corps of Engineers. See appendix for address.) The alongside depths for the facilities described are reported depths. (For information on the latest depths, contact the operator.) All the facilities described have highway connections and many have railway connections. Some of the facilities have water available.

(322) **Union Sand and Supply Corp. Dock:** E side of river 0.25 mile above pierheads; 1,119-foot face; 23 to 15 feet alongside; deck height, 10 feet; one front-end loader; open storage for 100,000 tons of material; receipt of

sand and limestone; owned by Fairport Development Co., Inc., and operated by the Union Sand and Supply Corp.

(323) **Northeastern Road Improvement Co. Dock:** E side of river above Union Sand and Supply Corp. Dock; 1,000-foot face; 23 to 15 feet alongside; deck height, 10 feet; one front-end loader; open storage for 200,000 tons of limestone; receipt of limestone; owned and operated by the Northeastern Road Improvement Co.

(324) **Osborne Concrete and Stone Co. Dock:** E side of river above Northeastern Road Improvement Co. Dock; 2000 feet of total berthing space along improved and natural bank; 23 feet alongside; bank height, 10 feet; vessel loading capability, two conveyors and two front-end loaders; open storage for 500,000 tons of material; owned and operated by Osborne Concrete and Stone Co.

(325) **Painesville Grand River Dock Co. Dock:** W side of the river 0.3 mile above the pierheads; 1,540 feet berthing space along natural bank; 22 to 18 feet alongside; deck height, 4 to 5 feet; two front-end loaders; open storage for 100,000 tons of material; receipt of limestone and sand; owned by Grand River Asphalt Co. and operated by Osborne Concrete and Stone Co. and R.W. Sidley, Inc.

(326) **Morton Salt Co. Fairport Plant Dock:** W side of the river 0.5 mile above the pierheads; 600 feet of berthing space with dolphins; 24 to 20 feet alongside; deck height, 10 feet; one fixed, offshore loading tower, capacity 1,000 tons per hour; storage silos for 12,000 tons of salt; open storage for 250,000 tons of salt; shipment of bulk salt; owned and operated by Morton Salt Co.

(327) **Grand River Asphalt Co. Dock:** W side of the river 0.6 mile above the pierheads; 900 feet of berthing space along natural bank; 19 to 20 feet alongside; deck height, 4 to 5 feet; open storage for 300,000 tons of limestone, sand, and asphalt; owned and operated by Grand River Asphalt Co.

(328) **LTV Steel Co., Lime Plant Dock:** W side of the river 0.75 mile above the pierheads; about 1,700 feet of berthing space along natural bank; 24 feet alongside; deck height, 3½ to 4 feet; two front-end loaders; storage silos for 17,000 tons of lime; open storage for 400,000 tons; receipt of limestone; owned and operated by LTV Steel Co.

(329) **Osborne Concrete and Stone Co. Dock:** On N and W sides of turning basin 1 mile above the pierheads; 400 feet of berthing space along natural bank on N side of basin, 19 to 18 feet alongside; 650 feet of berthing space along natural bank on W side of basin, 19 to 18 feet alongside; deck height, 4 feet; three front-end loaders and one mobile crane; open storage for 500,000 tons of material; receipt of limestone and sand; owned and operated by Osborne Concrete and Stone Co.

Supplies

(330) Bunker fuel is available by tank vessel from Cleveland. Limited marine supplies and provisions are available at Fairport Harbor.

Small-craft facilities

(331) Several marinas on the Grand River provide transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out, marine supplies, and launching ramps. Mobile lifts to 18 tons are available for hull, engine, and electronic repairs. In 1977, depths of 2 to 7 feet were reported alongside the berths.

Communications

(332) Fairport Harbor has good highway connections and is served by CSX Transportation, Inc.

Charts 14825, 14826, 14829

(333) From Fairport Harbor, the shoreline trends SW for about 29 miles to the main entrance to Cleveland Harbor. There is deep water about 1 mile offshore at Fairport Harbor, decreasing to 0.5 mile or less offshore at Cleveland. Several small-craft harbors and marinas are along this stretch of low wooded hills.

Charts 14825, 14829

(334) **Mentor Harbor**, about 4.5 miles SW of Fairport Harbor, comprises a group of privately developed small-craft channels and basins. The entrance to the harbor, protected by parallel breakwaters, is marked by private lights on the outer and inner ends of the breakwaters; a private **142°** range marks the approach. Local yachting interests usually maintain the entrance channel, close to the E breakwater. After strong NW to NE winds, sandbars are reported to form in the entrance channel. In May 1985, depths of 10 feet were reported in the entrance channel with, in 1979, 4 feet alongside the berths in the harbor. Transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out facilities, and marine supplies are available. Mobile lifts to 25 tons are available for hull, engine, and electronic repairs.

(335) A wreck, covered 20 feet, is 1.5 miles WNW of the entrance to Mentor Harbor.

(336) **Chagrin River** is about 10 miles SW of Fairport Harbor. The entrance is marked by a private light on the E side and by private lights on the pier on the W side of the mouth. In 1979, the controlling depth in the river was 1 foot, except for shoaling to bare on the E side about 200 feet inside the entrance. Several marinas in the river provide transient berths, water,

electricity, sewage pump-out, marine supplies, and launching ramps. Mobile lifts to 30 tons are available for hull, engine, and electronic repairs. In 1999, depths of about 8 feet were reported in the lagoon on the W side of the river just inside the entrance.

(337) The intake channel of a powerplant is just W of the mouth of Chagrin River. A private light marks the outermost part of the breakwaters that protect the channel.

Charts 14826, 14829

(338) The Wildwood Yacht Club harbor is about 5.4 miles NE of Cleveland Harbor East Entrance Light, close NE of **Euclid Creek.** The entrance is marked by private lights on the ends of the E and W pierheads. A detached breakwater is marked by private lights. In 1977, the reported controlling depths were 7 feet in the entrance, and 7 to 11 feet in the harbor.

(339) The Northeast Yacht Club Basin is adjacent to the Cleveland sewage disposal plant, about 4 miles NE of Cleveland Harbor East Entrance Light. The entrance is marked by private lights on the E end of the N breakwater and the N end of the E breakwater. In 1977, the reported controlling depth was 6 feet in the entrance and in the basin.

(340) In July 1984, a dangerous submerged wreck was reported about 2 miles NW of the mouth of Euclid Creek in about 41°36'N., 81°36'W.

(341) About 3.1 miles SW of Euclid Creek, at the mouth of a stream known locally as **Dugway Brook,** are submerged pilings in 12 feet of water.

Charts 14826, 14829, 14839

(342) **Cleveland Harbor**, about 175 miles SW of Buffalo and 95 miles E of Toledo, consists of an outer harbor formed by breakwaters and an inner harbor made up of the **Cuyahoga River,** and the **Old River** which was the original outflow channel of the Cuyahoga River. The city of **Cleveland, Ohio,** is one of the major industrial centers on Lake Erie.

(343) The major commodities handled at the port are iron, steel, and aluminum products; limestone, iron ore, sand, stone, salt, and other minerals; petroleum

products and other liquid bulk cargo; and general and containerized cargo in the foreign trade.

(344) Vessels calling at Cleveland Harbor may obtain information on river traffic by contacting the Great Lakes Towing Co. dispatcher on VHF-FM channels 16 or 10, or by radiotelephone through a land station, telephone, 800-321-3663.

(345) An unmarked **dumping ground** with a least reported depth of 35 feet is about 9.3 miles N of the main entrance to Cleveland Harbor.

Prominent features

(346) The most prominent objects when approaching Cleveland Harbor are the Municipal Stadium 0.7 mile E of the mouth of the Cuyahoga River, the Federal Office Building and the Erieview Plaza Tower about 1.1 miles E of the mouth, the Terminal Tower 1 mile SE of the mouth, and the lighted "W" sign 3.3 miles W of the mouth on the lakefront.

(347) **Cleveland Waterworks Intake Crib Light** (41°33.0'N., 81°45.0'W.), 55 feet above the water, is a private aid shown from a gray square house on a red cylindrical crib about 3.3 miles NW of the harbor entrance. A fog signal is at the light.

(348) **Cleveland Harbor East Entrance Light 2** (41°32.6'N., 81°39.1'W.), 59 feet above the water, is shown from a skeleton tower with a red triangular daymark at the NE end of the outer harbor breakwater.

(349) **Cleveland Harbor Main Entrance Light** (41°30'32"N., 81°43'04"W.), 63 feet above the water, is shown from a white conical tower with attached building on the W side of the main entrance to Cleveland Harbor. A fog signal is at the light.

Channels

(350) Cleveland outer harbor is formed by a series of breakwaters paralleling the shore for about 1 mile W and 4 miles E of the mouth of the Cuyahoga River. Lights mark the ends of each of the breakwaters. The main entrance from Lake Erie is through a dredged approach channel opposite the mouth of the river. The harbor may also be entered at the E end, and small craft may enter at the W end. The anchorage in the outer harbor has a mud and sand bottom. In the inner harbor, dredged channels lead upstream for about 5.6 miles in the Cuyahoga River and for about 1 mile in Old River, which branches W from Cuyahoga River 0.4 mile above the mouth. Lighted and unlighted buoys mark the limits of the dredged areas in the outer harbor. The piers at the mouth of the river are marked on the outer ends by lights.

(351) The Federal project depths are 29 feet in the approach channel from deep water in the lake, thence 28 feet through the entrance channel to the mouth of the river and in West Basin, 28-27 feet in East Basin, and 25 feet in Airport Range. In the inner harbor, project depths are 27 feet in the Cuyahoga River from the mouth to the junction with Old River, thence 23 feet to the upstream limit of the project, and 27 feet in Old River. (See Notice to Mariners and latest edition of charts for controlling depths.)

Anchorages

(352) Deep-draft vessels normally anchor about 2 miles SW or 3 miles E of Cleveland Waterworks Intake Crib Light in about 40 to 48 feet of water, clay and gravel bottom. The holding ground at these locations is reported to be good. Avoid anchoring over the potable water intake, the outer end of which is marked by a lighted buoy 0.7 mile W of Cleveland Waterworks Intake Crib Light. General anchorages are in the NW part of West Basin and S of the dredged channel in the E part of East Basin. An explosives anchorage is on the NW side of the E breakwater. (See **33 CFR 110.1 and 110.207,** chapter 2, for limits and regulations.) In 1977, it was reported that the East Basin general anchorage and the explosives anchorage had not been used for about 10 years. The West Basin anchorage has a sand and mud bottom and is used only occasionally. The harbormaster, who has control of the waters for all three anchorages, generally orders vessels to anchor outside the harbor. Vessels are prohibited from anchoring within 2,000 feet W of the main entrance channel.

Dangers

(353) During flood stages of the Cuyahoga River, debris may be encountered in the river and in the outer harbor.

(354) In September 1987, a sunken wreck with 1 to 2 feet of water over it, was reported in the Cuyahoga River on the W bank just S of Carter Road bridge.

(355) **Safety zones** have been established in the vicinity of river bends along Cuyahoga and Old Rivers. Mooring, standing or anchoring is prohibited in these areas. (See **33 CFR 165.1 through 165.7, 165.20 through 165.23, and 165.903**, chapter 2, for limits and regulations.)

Caution

(356) A submerged cable extends NNW from shore to Cleveland Harbor East Entrance Light. Vessels are cautioned not to drag anchor over the cable.

(357) Heavy small pleasure-craft traffic during the boating season is in Old River and on the Cuyahoga River as far upstream as just below the Conrail Bridge at mile 2.42.

Structures across Cuyahoga River
**Miles above West Pierhead Light*
***Clear width in feet proceeding upstream*

No.	Location and Name	Kind	Miles*	Clear width in feet of draw or span openings**			Clear heights in feet above Low Water Datum	Remarks
				Right	Left	Center		
	Main River							
1	ConRail bridge	Railroad	0.76			250	8	Vertical lift. Clearance up 98 feet. Note 1.
	Junction with Old River		0.86					
2	Main Ave. Viaduct	Highway	1.01			218	92	Fixed. Vertical clearance 97 feet for 165-foot center width
3	CSX RR bridge	Railroad	1.28			229	8	Bascule.
4	Center St. bridge	Highway	1.39			113	17	Swing.
5	Detroit-Superior Viaduct	Highway	1.42			113	98	Fixed.
6	Union Terminal Viaduct	Railroad	1.89			200	98	Fixed.
7	Columbus Rd. bridge	Highway	1.93			220	17	Vertical lift. Clearance up 98 feet.
8	ConRail bridge	Railrosd	2.24			200	8	Vertical lift. Clearance up 97 feet.
9	ConRail bridge	Railroad	2.42			200	23	Vertical lift. Clearance up 98 feet.
10	Carter Rd. bridge	Highway	2.43			201	22	Vertical lift. Clearance up 97 feet.
11	Eagle Ave. bridge	Highway	2.80			187	15	Vertical lift. Clearance up 97 feet.
12	Lorain-Carnegie Viaduct	Highway	3.14			178	96	Fixed.
13	ConRail bridge	Railroad	3.19			134	20	Bascule.
14	Norfolk Southern Railroad bridge	Railroad	3.34			200	64	Vertical lift. Clearance up 97 feet.
15	Inner Belt Freeway bridge	Highway	3.42			230	93	Fixed. Vertical clearance 97 feet for 199-foot center width.
16	W 3rd St. bridge	Highway	3.69			200	10	Vertical lift. Clearance up 97 feet.
17	Overhead cable	Power	3.71				124	
18	Jefferson Ave. bridge	Highway	4.51			100		Superstructure removed.
19	Newbourgh & South Shore Ry. bridge	Railroad	4.71			102	11	Bascule.
20	Overhead cable	Power	4.72				118	
21	CSX RR bridge	Railroad	4.75			102	10	Bascule.
22	Overhead cable	Power	4.76				118	
	Junction with Turning Basin		4.91					
22A	I-490 Bridge	Highway	4.79			110	101	Fixed.
23	Overhead cable	Power	5.34				122	
24	Overhead conveyor		5.35			210	99	

Structures across Cuyahoga River
**Miles above West Pierhead Light*
***Clear width in feet proceeding upstream*

No.	Location and Name	Kind	Miles*	Clear width in feet of draw or span openings**			Clear heights in feet above Low Water Datum	Remarks
				Right	Left	Center		
25	Overhead pipeline		5.39			210	99	
26	River Terminal RR bridge	Railroad	5.42			129	15	Bascule.
27	Norfolk Southern Railroad bridge	Railroad	5.47			200	28	Vertical lift. Clearance up 97 feet.
28	Overhead cable	Power	5.49				122	
29	Norfolk Southern Railroad bridge	Railroad	6.07			27	14	Fixed.
30	Overhead cable	Telephone	6.08					Data not available.
31	Newburgh & South Shore Ry. bridge	Railroad	6.09			59	14	Fixed.
32	Overhead cable		6.10				118	
	Old River Junction with Main River		0.86					
33	CSX RR bridge	Railroad	0.89			170	6	Bascule.
34	Willow Ave. bridge	Highway	1.02			150	12	Vertical lift. Clearance up 98 feet.

Note 1.–The bridgetender monitors VHF-FM channel 16 and works on channel 13; call sign, KUF-618.

See **33 CFR 117.1 through 117.49**, chapter 2, for drawbridge regulations.

Bridges over Cuyahoga River will be closed to river traffic as follows: Carter Road and Eagle Avenue bridges, 0730 to 0800, 0815 to 0845, 1615 to 1645, and 1700 to 1730, provided that when these two bridges are opened between 0800 and 0815 and between 1645 and 1700 the opening shall be so timed as to permit a moving vessel to pass through both draws; Columbus Road and West Third Street, 0730 to 0800 and 1700 to 1730. The above hours are not applicable to Sundays, legal holidays, and Saturday afternoons, nor at times of emergency when fire tugs request the opening of any draw, nor when there is a swift current in the river. The rush hour bridge closures do not apply to commercial vessels; however, commercial vessels are asked to voluntarily comply with such closures.

Local bridge regulations

(358) **Sec. 7.1511.** A copy of the ordinances relating to the management of bridges and viaducts and the signals for opening and closing the same shall be posted up in the pilot house of every tug employed in navigating the Cuyahoga River or old river bed, and the harbormaster is hereby instructed to furnish, upon application, a printed copy of the same to the master of any such tug.

(359) **Sec. 7.1701.** No more than one boat or craft for which the draw of any bridge has to be opened or swung shall pass through said draw at the same time.

(360) **Sec. 7.1706.** The captain, bridgetenders, or other persons in charge of any of the drawbridges shall not close the same against vessels or boats seeking to pass through, until passengers and teams have been delayed fully 10 minutes by the said draws of the above-mentioned bridges being open.

(361) **Sec. 7.1708.** The director of port control shall by rule designate the hours when it may be necessary to keep any city drawbridge closed for the accommodation of traffic.

(362) **Sec. 7.1713.** No material of any kind shall be deposited under any of the viaducts, without a permit from the Director of Port Control; no material shall be deposited adjacent to viaduct that would injure the structure in case of fire; and no bills, posters, or advertisements of any kind shall be posted on any part of any viaduct.

(363) **Sec. 7.1714.** Any person violating any of the provisions of this subdivision shall be fined not less than $5 nor more than $25, and shall also be liable to the city for all damage that may be done to the drawbridge by collision or otherwise.

Weather, Cleveland and vicinity

(364) Cleveland, OH, located on the south shore of Lake Erie and in northeastern Ohio, averages about 12 days each year with maximum temperatures in excess of 90°F (32.2°C). July is the warmest month with an

average high of 83°F (28.3°C) and an average minimum of 62°F (16.7°C). January is the coolest month with an average high of 34°F (1.1°C) and an average minimum of 19°F (-7.2°C). The highest temperature on record for Cleveland is 104°F (40°C) recorded in June 1988 and the lowest temperature on record is -20°F (-28.9°C) recorded in January 1994. About 122 days each year sees temperatures below 32°F (0°C) and an average ten days each year records temperatures below 5°F (-15°C). Every month has seen temperatures below 40°F (4.4°C) except July (41°F, 5°C) and every month except July, August, and September has recorded temperatures at or below freezing (0°C).

(365) The average annual precipitation for Cleveland is 37.2 inches (945 mm) which is fairly evenly distributed throughout the year. Precipitation falls on about 220 days each year. The wettest month is July with 3.6 inches (91 mm) and the driest, February, averages only 2.3 inches (58 mm). An average of 33 thunderstorm days occur each year with June and July being the most likely months. Snow falls on about 84 days each year and averages about 57 inches (1448 mm) each year. December, January, and February each average greater than 12 inches (305 mm) per month. One foot or greater (>305 mm) snowfalls in a 24-hour period have occurred in each month November, December, and February and 14 inches (356 mm) fell in one 24-hour period during February 1993. About 12 days each year has a snowfall total greater than 1.5 inches (38 mm) and snow has fallen in every month except June, July, August, and September. Fog is present on average 148 days each year and is evenly distributed throughout the year with a slight maximum in August.

(366) The prevailing wind direction in Cleveland is southwest. March is the windiest month. The highest gust on record was a southwest wind of 71 knots recorded in January 1978.

(367) (See Page T-5 for **Cleveland climatological table.**)

Towage

(368) Tugs to 2,000 and 1,200 hp are available from Great Lakes Towing Co. or Gaelic Tugboat Co., respectively. Arrangements for tugs are made through the companies' dispatchers in Cleveland at 800-321-3663 or 216-566-0400, respectively. Both dispatchers may be contacted on VHF-FM channel 16 (156.80 MHz). At least 3 hours advance notice is requested.

(369) At least 2 hours advance notice is requested. Vessels carrying 1,200 tons or more of gasoline, oil, explosives, or other dangerous material, and all vessels carrying 3,000 tons or more of cargo of any kind, must have the assistance of a tug or tugs while navigating the Cuyahoga River S of Superior Avenue.

(370) Cleveland is a **customs port of entry.**

Quarantine, customs, immigration, and agricultural quarantine

(371) (See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(372) **Quarantine** is enforced in accordance with the regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

Coast Guard

(373) A **Marine Safety Office,** a **vessel documentation office,** and the headquarters of the Ninth Coast Guard District are at Cleveland. (See appendix for addresses.) **Cleveland Coast Guard Station** is on the S side of the outer harbor just W of Burke Lakefront Airport.

Harbor Regulations

(374) Federal regulations specify a **speed limit** of 6 mph (5.2 knots) in the harbor except in the outer harbor where the speed limit is 10 mph (8.7 knots). (See **33 CFR 162.160 and 207.570,** chapter 2, for regulations.) However, the city of Cleveland has adopted a lesser **speed limit** of no wake, 4 mph (3.5 knots) in the Cuyahoga River and Old River. During fog or when a blue light or flag is shown from any pier, wharf, bridge or other place where person or property may be endangered, a **speed limit** of 2 mph (1.7 knots) is enforced.

(375) Local harbor regulations are established by the city of Cleveland and enforced by the **harbormaster** who can be contacted at Water Control Laboratory, New West Pier, Whiskey Island, c/o Water Control Laboratory, 1201 Lakeside Avenue, Cleveland, Ohio 44114. Copies of the regulations can be obtained from the Office of the City Clerk, Room 216, City Hall, 601 Lakeside Avenue, Cleveland, Ohio 44114.

Wharves

(376) There are extensive waterfront facilities in Cleveland outer harbor and along both banks of Cuyahoga River and Old River. Only the deep-draft facilities are described. (For a complete description of the port facilities, refer to Port Series No. 43, published and sold by the U.S. Army Corps of Engineers. See appendix for address.) The alongside depths for the facilities described are reported depths. (For information on the latest depths, contact the operator.) All the facilities described have highway connections, and many have railway, water, and electrical shore-power connections. Cargo in the port is generally handled by ships' tackle. Cranes to 230 tons and floating cranes to 30 tons are available. Many of the piers, wharves, and docks are available for winter mooring of vessels during the closed navigation season.

Facilities in East Basin:

(377) **Cleveland-Cuyahoga County Port Authority** operates five facilities on the S side of East Basin which are owned by the city of Cleveland. The deck height at all these wharves is 10.4 feet. Four transit sheds provide 259,000 square feet of covered storage, and there is 14 acres of open storage. Cranes to 230 tons and forklifts to 31 tons are available.

(378) **Stadium Wharf, Berth 32 E:** (41°30'36"N., 81°41'53"W.); 712-foot face; 27 feet alongside; receipt and shipment of conventional and containerized general cargo, receipt of aluminum pigs, handling of steel products.

(379) **Stadium Wharf, Berths 28, 30, and 32 N:** (41°30'33"N., 81°42'01"W); 1,606-foot face; 27 feet alongside; receipt and shipment of conventional and containerized general cargo.

(380) **Stadium Wharf, Berth 28 W:** (41°30'24"N., 81°42'11"W.); 710-foot face; 27 feet alongside; receipt and shipment of conventional and containerized general cargo, handling of steel products and heavy-lift items.

(381) **Pier No. 26:** (41°30'25"N., 81°42'18"W.); 698-foot E side, 297-foot N face, 681-foot W side; 27 feet alongside; receipt and shipment of conventional and containerized general cargo.

(382) **Pier No. 24:** (41°30'21"N., 81°42'23"W.); 672-foot E side, 519-foot N face, 642-foot W side; 27 feet alongside; receipt and shipment of conventional and containerized general cargo; receipt and shipment of steel products; receipt of newsprint.

Facilities in West Basin:

(383) **Cleveland Bulk Terminal, Lakefront Wharf:** (41°29'48"N., 81°43'25"W.); 1,875 feet of berthing space with dolphins; 24 to 30 feet alongside; deck height, 9 feet; open storage for 1 million tons of ore; receipt of iron ore, iron ore pellets, and other dry bulk commodities; owned by Cleveland-Cuyahoga County Port Authority and operated by Oglebay Norton Terminals, Inc.

Facilities in Cuyahoga River below the junction with Old River:

(384) **Cleveland-Cuyahoga County Port Authority Wharf, Berth 20:** (41°30'09"N., 81°42'38"W.); E side of Cuyahoga River inside the entrance; 600-foot face; 27 feet alongside; deck height, 8 feet; 9 acres of open storage; receipt of miscellaneous bulk materials; owned and operated by Cleveland-Cuyahoga County Port Authority.

(385) **Ontario Stone Corp., Dock No. 1:** (41°29'58"N., 81°42'34"W.); 500 feet of berthing space; 25 feet alongside; deck height, 8 feet; open storage for 140,000 tons of limestone; receipt of limestone; owned and operated by Ontario Stone Corp.

Facilities in Old River:

(386) **Lafarge Corp., Cleveland Terminal Wharf:** (41°29'49"N., 81°42'32"W.); S side of the river mouth, SW side of Sycamore Slip; 415-foot face; 24 feet alongside; deck height, 8 to 10 feet; storage silos in rear have a capacity for 36,000 tons of cement; receipt of cement; owned and operated by Lafarge Cement Corp.

(387) **Ontario Stone Corp., Dock No. 3:** (41°29'41"N., 81°42'49"W.); N side of Old River about 0.25 mile above Willow Avenue bridge; 600-foot face; 25 feet alongside; deck height, 8 feet; open storage for 200,000 tons of material; receipt of limestone; owned and operated by Ontario Stone Corp.

(388) **Ontario Stone Corp., Dock No. 4:** (41°29'37"N., 81°42'49"W.); S side of Old River opposite Ontario Stone Corp., Dock No. 3; 1,620-foot face; 19 to 26 feet alongside; deck height, 7 feet; open storage for 300,000 tons of material; receipt of limestone and other bulk commodities; owned and operated by Ontario Stone Corp.

(389) **Sand Products Corp., Dock No. 1:** (41°29'33"N., 81°42'56"W.); N side of Old River 1,500 feet above Ontario Stone Corp., Dock No. 3; 1,000 feet of berthing space; 20 to 25 feet alongside; silo storage for 1,000 tons of sand; receipt of sand; owned and operated by Sand Products Corp.

(390) **Cargill Salt Division, Cleveland Mine Wharf:** (41°29'36"N., 81°43'42"W.); W side of slip, W of Sand Products Corp., Dock No. 1; 602-foot face; 18 to 24 feet alongside; deck height, 12 feet; fixed loading tower, loading rate 3,300 tons per hour; storage tank, capacity 36,000 tons; shipment of graded dry bulk rock salt; owned by Cargill, Inc. and operated by Cargill Salt Division.

Facilities in the Cuyahoga River above the junction with Old River:

(391) **Cereal Food Processors Dock:** (41°29'32"N., 81°42'14"W.); E side of river about 250 feet above Center Street bridge; 350-foot face; 20 to 23 feet alongside; deck height, 3 to 5 feet; storage silos and bins for 500,000 bushels of wheat; receipt of wheat; owned and operated by Cereal Food Processors, Inc.

(392) **Southdown Cement Co., Cleveland Dock:** (41°29'28"N., 81°42'00"W.); W side of river 0.2 mile above Columbus Road bridge; 600-foot face; 20 to 23 feet alongside; deck height, 5 to 6 feet; silo storage for 15,000 tons of cement; receipt of bulk cement; owned and operated by Southdown Cement Co.

(393) **United Ready Mix Dock:** (41°29'28"N., 81°41'56"W.); E side of river 0.2 mile above Columbus Road bridge;

895-foot face; 18 to 24 feet alongside; deck height, 10 feet; 3 acres open storage; receipt of stone; owned by Forest City Enterprise and operated by United Ready Mix, Inc.

(394) **Mid-Continent Coal and Coke Co. Dock:** (41°29'30"N., 81°41'33"W.); E side of river between Eagle Avenue bridge and Lorain Carnegie Viaduct; 1,745-foot face; 8 feet alongside; deck height, 6 to 9 feet; loading tower, rate 400 tons per hour; open storage for 20,000 tons of screened and unscreened material; shipment of coke breeze; owned by City of Cleveland and Mid-Continent Coal and Coke, and operated by Mid-Continent Coal and Coke.

(395) **River Dock Inc., Dock:** (41°29'17"N., 81°41'33"W.); E side of river above Mid-Continent Coal and Coke Wharf; 630 feet of berthing space; 19 to 23 feet alongside; deck height, 8 to 10 feet; open storage for 780,000 tons of limestone; receipt of limestone; owned and operated by River Dock, Inc.

(396) **Lafarge Corp., Construction Materials Group Wharf:** (41°29'15"N., 81°41'17"W.); N side of river immediately E of Inner Belt Freeway bridge; 1,680 feet of berthing space; 24 feet alongside; deck height, 6 to 8 feet; open storage for 185,000 tons of material; receipt of sand, limestone, and other bulk materials; owned and operated by Lafarge Corp., Construction Materials Group.

(397) **The Osterland Co., Cleveland South Dock:** (41°29'15"N., 81°41'17"W.); SE side of river between Inner Belt Freeway bridge and W 3rd Street bridge; 1,185 feet of berthing space, 23 feet alongside; deck height, 8 feet; open storage for 40,000 tons of material; receipt of limestone and other miscellaneous dry bulk commodities; owned by Lafarge Corp., Construction Materials Group and operated by The Osterland Co.

(398) **Ontario Stone Corp., Dock No. 2:** (41°29'20"N., 81°41'05"W.); NW side of the river immediately above W 3rd Street bridge; 565 feet of berthing space 22 feet alongside; deck height, 8 feet; open storage for 100,000 tons of stone; receipt of limestone; owned and operated by Ontario Stone Corp.

(399) **Bituminous Products Co., Cleveland Terminal Wharf:** (41°29'03"N., 81°40'39"W.); W side of the river; 300-foot face; 18 to 23 feet alongside; deck height, 10 to 12 feet; pipeline extends to storage tanks, total capacity 215,900 barrels; receipt of asphalt; owned by Osborne Inc., and operated by Bituminous Products Co.

(400) **Blue Circle Cement Co., Cuyahoga Terminal Dock:** (41°28'58"N., 81°40'38"W.); 1,335-foot face, 19 to 20 feet alongside; deck height, 8 to 11 feet; storage silos with combined capacity of 24,000 tons; receipt of cement; owned and operated by Blue Circle Cement Co.

(401) **LTV Steel Corp., Cuyahoga West Side, Lower Dock:** (41°28'28"N., 81°40'14"W.); 2,054 feet of berthing space; 10 to 23 feet alongside; deck height, 10½ feet; one traveling bridge crane; open storage for 35,000 tons of limestone and 750,000 tons of iron ore pellets; receipt of iron ore pellets and limestone; owned and operated by LTV Steel Corp.

(402) **LTV Steel Corp., West Side, Middle Dock:** (41°28'02"N., 81°40'19"W.); 2,780 feet of berthing space; 19 to 23 feet alongside; deck height, 9½ feet; one traveling bridge crane; open storage for 850,000 tons of iron ore pellets and 200,000 tons of limestone; three storage tanks for 238,500 barrels of fuel oil; receipt of iron ore pellets and limestone; owned and operated by LTV Steel Corp.

(403) **LTV Steel Corp., Cuyahoga Fuel Oil Dock:** (41°28'03"N., 81°40'15"W.); 1,150-foot face; 20 feet alongside; deck height, 8 to 12 feet; storage tank, capacity 285,700 barrels; receipt of fuel oil; and owned and operated by LTV Steel Corp.

(404) **LTV Steel Corp., East Side, Upper Dock:** (41°27'52"N., 81°40'29"W.); 1,320 feet of berthing space; 20 to 23 feet alongside; deck height, 10 feet; two traveling bridge cranes with a rate of 700 tons per hour; open storage for 674,000 tons of iron ore pellets; receipt of iron ore pellets; owned and operated by LTV Steel Corp.

Supplies

(405) All types of marine supplies and provisions are available at Cleveland. Vessels normally receive bunker and diesel fuels at their berths from self-propelled vessels.

Repairs

(406) The Halvorsen Boiler and Engineering Company maintains portable equipment for making repairs to vessels at their berths and a machine shop capable of producing shafts 16 feet by 14 inches. G and W Industries, Inc. has a berth on the S side of the river above the Carter Road bridge with a 60-ton crane and floating cranes to 35 tons. They produce shafts up to 12 feet by 36 inches. The above repair companies are on the Cuyahoga River and provide all types of above-the-waterline repairs to vessels in Cleveland harbor.

(407) Great Lakes Towing Company's facility is in Old River and has a 250-ton floating drydock, a heavy lift crane, and complete machinery facilities for above and below-waterline repairs of all types.

Small-craft facilities

(408) Several marinas on the lakefront provide transient berths, gasoline, diesel fuel, water, ice, electricity, launching ramps, and sewage pump-out. Hoists to 40 tons can handle 65-foot vessels for hull, engine, and electronic repairs. A boatyard at the upper end of Old River has a travellift and crane with capacities to 20

tons, and can make small-craft repairs of all kinds. Marine supplies and provisions are available in the city and at several marine supply companies on the Cuyahoga River. Numerous marinas are along the banks of Old River and Cuyahoga River.

Communications

(409) Cleveland is a major transportation terminus. The city is served by several rail lines and has excellent highway connections. Major international and domestic airlines serve Cleveland-Hopkins International Airport in the SW part of the city and Burke Lakefront Airport on the S side of the outer harbor.

Charts 14826, 14829

(410) W from Cleveland, the shore consists of 10- to 20-foot-high bluffs and sandy beaches, and the shoreline trends generally W to **Avon Point** (41°30.9'N., 82°00.8'W.), a broad rounding point projecting somewhat to N about 15 miles from the Cleveland entrance. From Avon Point to Lorain, about 10 miles SW, the bluffs are smaller. Between Cleveland and Lorain, deep water is no more than 1.2 miles offshore except just E of Lorain where detached shoal spots extend 3 miles into the lake. An artificial reef marked by private buoys is about 0.6 mile offshore 2.6 miles ENE from the mouth of Rocky River. A wreck, covered 30 feet, is 4.3 miles NNE of Avon Point.

(411) **Rocky River Harbor** is at the mouth of the **Rocky River,** about 6.5 miles W of Cleveland Harbor entrance, at the city of **Lakewood, Ohio.**

(412) Two unmarked **dumping grounds** with least reported depths of 35 feet are 1.3 and 3.6 miles N of the mouth of Rocky River.

Channels

(413) The harbor is entered from Lake Erie through a dredged entrance channel on the SW side of a pier that extends lakeward from the E side of the mouth of Rocky River. Lights mark the outer and inner ends of the pier. The dredged channel extends upstream for 0.9 mile above the mouth to a turning basin at the head. An anchorage basin is on the SW side of the channel just inside the mouth of the river.

(414) In March-April 2004, the controlling depths were 9.3 feet in the left half and 6.5 feet in the right half of the entrance channel to the anchorage basin, with 3 to 6 feet in the basin, thence 3.9 feet to the Norfolk-Southern Railway bridge, thence 3.2 feet to the turning basin, with 3 to 6 feet in the basin.

Bridges

(415) Three fixed bridges with a least clearance of 49 feet cross the navigable portion of Rocky River. The Clifton-Westlake highway bridge, the Norfolk Southern Railway bridge, and the Detroit Road highway bridge are 0.4, 0.5, and 0.7 mile above the mouth, respectively. Overhead power cables with a minimum clearance of 49 feet are just below the railroad bridge and just below the Detroit Road bridge.

(416) **Harbor regulations** have been established by the city of Lakewood. The Department of Public Safety enforces a 6 mph (5.2 knots) **speed limit**. Copies of the regulations may be obtained from the Department of Public Safety.

Small-craft facilities

(417) Most of the facilities in the harbor are private. However, limited transient berths, gasoline, water, electricity, a launching ramp, and marine supplies are available. Hoists to 6 tons are available for hull and engine repairs.

(418) About 2.2 miles WSW of Avon Point, a private light marks the outer end of the breakwaters protecting the intake channel of the Cleveland Electric Illuminating Co. A wreck, covered 6 feet, is close N of the light.

Charts 14826, 14829, 14841

(419) **Lorain Harbor**, serving the city of **Lorain, Ohio,** is about 25 miles W of Cleveland Harbor. It comprises the lower 3 miles of the **Black River** and an outer harbor.

(420) An unmarked **dumping ground** with a least reported depth of 35 feet is centered about 3.5 miles N of the harbor entrance.

Prominent features

(421) The ore docks on the W side of the mouth of Black River and the stacks of the powerplant 0.3 mile SW of the mouth are prominent.

(422) **Lorain Harbor Light** (41°28.9'N., 82°11.7'W.), 60 feet above the water, is shown from a white tower on the W end of the detached breakwater on the N side of the entrance channel. A fog signal is at the light.

Channels

(423) The harbor is entered through a dredged entrance channel that leads ESE from the deep water in Lake Erie on the S side of a detached breakwater, and then leads SE between converging breakwaters to the mouth of Black River. The mouth of the river is entered between parallel piers, and the dredged channel leads upstream for about 2.8 miles. A turning basin is on the SW side of the channel, 1.6 miles above the mouth and

two turning basins are at the head of the project. In the outer harbor, basins are on either side of the entrance channel. From the S side of the outer harbor W basin, an approach channel leads SE to the municipal pier 0.2 mile W of the mouth of the river. Lights mark the ends of the breakwaters and the piers at the river mouth. Buoys mark the E limit of the dredged basin in the outer harbor.

(424) In April 2004, the controlling depths were 25.1 feet (26.7 feet at midchannel) to the Lorain Yacht Basin, thence 23.9 feet (except for lesser depths to 19.5 feet along the channel edges) to the 21st Street bridge, thence 19.2 feet to the head of the project (except for lesser depths to 17 feet at the head of the project.) The turning basin on the SW side of the channel, 1.6 miles above the mouth, had depths of 16 to 20 feet. The two turning basins at the head of the project, one on the N side and the other at the head, had depths of 14 to 18 feet and 6 to 10 feet, respectively. The depths in both the E and W basins of the outer harbor were 20 to 23 feet with lesser depths along the edges.

(425) A semicircular diked disposal area is on the NE side of the E breakwater. A floating breakwater extends about 750 feet at right angles from the SW side of the same breakwater.

Dangers

(426) Several detached shoals are in the approach to Lorain Harbor. A shoal with least depths of 22 feet extends 1.4 miles from shore within 2 miles E of the harbor entrance. Several shoal spots with depths of 24 to 28 feet are from 1.4 to 2.4 miles N of Lorain Harbor Light.

Bridges

(427) Erie Avenue bridge, about 0.6 mile above the mouth of Black River, has a bascule span with a clearance of 33 feet at the center. Norfolk Southern Railway bridge, 1.2 miles above the mouth, has a vertical lift span with clearances of 35 feet down and 123 feet up. The 21st Street bridge, 2 miles above the mouth, has a fixed span with a clearance of 97 feet. An overhead power cable on the E side of the bridge has a clearance of 120 feet. (See **33 CFR 117.1 through 117.59 and 117.850,** chapter 2, for drawbridge regulations.)

Towage

(428) Tugs for Lorain are available from Cleveland. (See Towage under Cleveland.)

(429) Lorain is a **customs station.**

Quarantine, customs, immigration, and agricultural quarantine

(430) (See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(431) **Quarantine** is enforced in accordance with the regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

Coast Guard

(432) Lorain Coast Guard Station is on the E side of the Black River just inside the mouth.

Harbor regulations

(433) A **speed limit** of 6 mph (5.2 knots) is enforced in the harbor except in the outer harbor where it is 10 mph (8.7 knots). (See **33 CFR 162.160 and 207.570,** chapter 2, for regulations.)

(434) Local harbor regulations are established by the City of Lorain. Information may be obtained by contacting the Lorain Port Authority, City Hall, 200 West Erie, Lorain, Ohio 44052, telephone: (216) 244-2269.

Wharves

(435) Lorain has piers and wharves in the SW part of the outer harbor and along both sides of the Black River. Only the deep-draft facilities are described. (For a complete description of the port facilities, refer to Port Series No. 42, published and sold by the U.S. Army Corps of Engineers. See appendix for address.) The alongside depths given for the facilities described are reported depths. (For the latest depths, contact the operator.) All the facilities described have highway connections. Many have railroad, water, and electrical shore-power connections. Special cargo handling equipment is described under the individual facilities. Many of the facilities are used for mooring vessels during the closed navigation season.

(436) **LTV Steel Co. Lorain Pellet Terminal Mooring Basin:** 0.1 mile W of the entrance to Black River; NE face 1,090 feet berthing space; 20 to 23 feet alongside; SW face 1,095 feet berthing space; 25 feet alongside; deck height, 8 feet; mooring of vessels awaiting berth at LTV Steel Corp., Lorain Pellet Terminal Wharf; owned and operated by LTV Steel Corp.

(437) **LTV Steel Corp. Lorain Pellet Terminal Wharf:** W side of the river 0.2 mile above the outer end of the W pier; 2,200 feet of berthing space; 27 feet alongside; deck height, 8 feet; open storage for 532,000 tons of ore; receipt and shipment of iron ore pellets; owned and operated by LTV Steel Corp.

(438) **USX Corp., Lorain Works, Slag Dock:** SW side of the river 0.3 mile above the 21st Street bridge; 220 feet of berthing space with dolphins; 20 feet alongside; three front-end loaders; open storage for 30,000 tons of

material; receipt of miscellaneous dry bulk materials and occasional shipment of crushed slag and coke breeze; owned and operated by USX Corp.

(439) **USX Corp., Lorain Works, Ore Dock:** S side of the river 0.6 mile above the 21st Street bridge; 2,490-foot face; 26 feet alongside; deck height, 10½ feet; traveling of bridge crane; conveyor belt capacity 5,000 tons per hour; three front-end loaders; open storage for 3 million tons of iron ore and 310,000 tons of limestone; receipt of iron ore and limestone; owned and operated by USX Corp.

(440) **Gold Bond Building Products, Lorain Plant Wharf:** E side of the river about 0.3 mile above the 21st Street bridge; 750 feet of berthing space with dolphins; 20 feet alongside; deck height, 7 feet; open storage for 120,000 tons of gypsum rock; receipt of gypsum rock; owned and operated by Gold Bond Building Products, Division of National Gypsum Co.

(441) **Jonick Dock and Terminal Wharf:** E side of river 0.2 mile above the Norfolk Southern Railway bridge; 300 feet berthing space with dolphins; 27 feet alongside; deck height, 5 feet; covered storage for 40,000 tons of bulk material, open storage for 12,000 tons of material; receipt of crushed stone, occasional receipt of miscellaneous bulk materials; owned and operated by Jonick & Co.

(442) **Terminal Ready-Mix Dock:** N side of the river above the Norfolk Southern Railway bridge; 150-foot face; 500-foot natural bank; 10 to 25 feet alongside; deck height, 5 feet; open storage for 50,000 tons of sand and stone; receipt of sand and stone; owned by Ethel Falbo and operated by Terminal Ready-Mix, Inc.

Supplies

(443) Bunker C oil is available by tank barge, and diesel oil is available by truck from local companies. Provisions and marine supplies are available on the N side of the Black River just E of the Erie Avenue bridge.

Small-craft facilities

(444) Marinas in Lorain Harbor are in the outer harbor E of the river mouth, on the NE side of the river just inside the mouth, on the E side of the river just upstream of the Erie Avenue bridge and further upstream on the N side, just past the railroad bridge. Gasoline, diesel fuel, water, ice, sewage pump-out facilities, and some marine supplies are available. A 50-ton travel lift is available at the Marina on the E side of the river, just upstream of the Erie Avenue bridge. Engine repairs are made at a boatyard on the NE side of the river just upstream of the Erie Avenue bridge, a 30-ton hoist is also available.

Communications

(445) Lorain has highway connections and is served by three major rail lines, ConRail, Norfolk Southern, and CSX Transportation, Inc. Lorain County Airport is S of the city.

Charts 14826, 14829

(446) From Lorain, the shoreline trends SW for about 4 miles to Beaver Creek, thence 6 miles W to Vermilion. Throughout this stretch, deep water is about 0.9 mile offshore.

(447) **Beaver Creek**, about 4 miles SW of Lorain Harbor, has a small-craft harbor and summer resort at the mouth. The channel leads S between a pier and a breakwater at the mouth of the river. The entrance is marked by private lights.

(448) In April 1993, the reported depth through the channel was 8 feet. A bar that forms across the entrance reportedly washes out during the spring and after some storms, and restricts the harbor to small craft with shallow drafts. The fixed bridges and cables that cross the creek about 0.3 mile above the mouth have a minimum clearance of 9 feet. Several other overhead cables with unknown clearances cross the creek and the marina slips upstream. This harbor is within the legal boundary of the city of Lorain, and the local harbor regulations of Lorain apply.

(449) A marina inside the mouth of the creek has transient berths, gasoline, diesel fuel by truck, water, electricity, and a 30-ton travel lift for hull and engine repairs. For craft that can navigate under the bridges, three marinas upstream additionally provide gasoline, ice, marine supplies, launching ramps, and engine repairs.

Charts 14826, 14830

(450) **Vermilion**, about 34 miles W of Cleveland, has a harbor used mainly by fishing and recreational craft. The harbor comprises the lower 3,000 feet of the **Vermilion River,** and an approach channel from the lake. About 0.6 mile SE of the river entrance, a lighted tank with the name VERMILION on the side is prominent.

(451) An unmarked **dumping ground** with a least reported depth of 32 feet is about 2.3 miles N of the entrance to Vermilion River.

Channels

(452) The approach to the river from Lake Erie is through two dredged channels that lead around either end of a detached breakwater, join, and lead S between two piers at the mouth of the river. The channel leads

upstream for about 0.6 mile to the Liberty Avenue bridge. Lights mark the ends and center of the breakwater and the ends of the piers.

(453) In April 2004, the controlling depths were 4.5 feet in the W approach and 3.9 feet in the approach to the mouth of the river, thence 4.8 feet to the entrance of Superior Lagoon, thence 3.1 feet in the left half and shoaling to 0.1 foot in the right half of the channel to the Liberty Avenue bridge.

Dangers

(454) Just S of the dumping ground, several fish net stakes are in about 32 feet of water. A 6-foot shoal, is about 0.4 mile W of the W approach channel.

Bridges

(455) The Liberty Avenue bridge, 0.7 mile above the pierheads, has a fixed span with a clearance of 12 feet. The ConRail bridge 0.1 mile upstream has a fixed span with a clearance of 21 feet. The Norfolk Southern Railway bridge, 1 mile above the pierheads, has a fixed span with a clearance of 14 feet. Several overhead cables with unknown clearances cross the river in the vicinity of these bridges.

Harbor Regulations

(456) A **speed limit** of 6 mph (5.2 knots) is enforced in the harbor. (See **33 CFR 162.160 and 207.565,** chapter 2, for regulations.)

Small-craft facilities

(457) The Kishman Fish Co. operates a 450-foot wharf on the W side of the river 0.4 mile above the entrance. There are depths of 9 to 15 feet reported alongside and a deck height of 5 feet.

(458) Several marinas in the lower 1.2 miles of the river provide transient berths, gasoline, diesel fuel, water, ice, electricity, launching ramps, and marine supplies. Hoists to 20 tons are available at several boatyards in the river for hull and engine repairs.

Chart 14830

(459) From Vermilion, the shoreline extends SW for about 7.3 miles to the southernmost point of Lake Erie. Along this stretch, rocky shallows extend 1 mile offshore with deep water as much as 1.5 miles off. Thence NW for 3.4 miles to Huron Harbor, deep water is about 1 mile offshore except just E of Huron Harbor. An unmarked 13-foot spot is near the outer end of a shoal that extends 1.5 miles into the lake ENE of the Huron Harbor entrance channel.

Charts 14830, 14843

(460) **Huron Harbor** is about 44 miles W of Cleveland inside the mouth of the **Huron River** at the city of **Huron, Ohio.**

(461) Grain, iron ore, and limestone are the principal commodities handled at the port.

(462) An unmarked **dumping ground** with a least reported depth of 35 feet is 3 miles N of the entrance to Huron Harbor.

Prominent features

(463) The stacks of the Huron Lime Co. on the E side of the river mouth are prominent.

(464) **Huron Harbor Light** (41°24.3'N., 82°32.6'W.), 80 feet above the water, is shown from a white square pyramidal tower on the W pierhead. A fog signal is at the light.

Channels

(465) The harbor is entered through a dredged channel that leads SW from deep water in Lake Erie between a pier and an adjacent disposal area on the NW side, and a breakwater on the SE side to the mouth of the Huron River. The channel leads into the river to a turning basin with its upper end about 0.4 mile above the mouth. Buoys mark the entrance channel, and lights mark the outer end of the pier and breakwater and each side of the river mouth. Federal project depths are 29 feet in the entrance channel to the inner end of the W pier, thence 28 feet to the turning basin, thence 27 feet in the E half of the basin and 21 feet in the W half of the basin. (See Notice to Mariners and latest editions of charts for controlling depths.) Huron River is navigable by small craft for about 10 miles above the mouth.

(466) A semicircular diked disposal area is on the W side of the W pier.

Dangers

(467) An extensive area of fish net stakes is off the entrance to Huron Harbor.

Towage

(468) Tugs for Huron are available from Cleveland. (See Towage under Cleveland.)

(469) Huron is within the Sandusky **customs port of entry.**

(470) Quarantine, customs, immigration, and agricultural quarantine.–

(471) (See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(472) **Quarantine** is enforced in accordance with the regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

Structures across Huron River
***Miles above Huron Harbor Inner Light**
****Clear width in feet proceeding upstream**

No.	Location and Name	Kind	Miles*	Clear width in feet of draw or span openings**			Clear height in feet above Low Water Datum	Remarks
				Right	Left	Center		
1	Overhead cables	Power	0.72				70	
2	Cleveland Rd. E. bridge	Highway	0.73			86	21	Fixed.
3	Overhead cable		0.73				52	
4	Overhead cable	Power	0.77				50	
5	ConRail bridge	Railroad	0.79	57	57		19	Fixed.
6	Overhead cable	Power	0.79				50	
7	Mason Rd. bridge	Highway	6.56			115	13	Fixed.
8	Fries Landing bridge	Highway	7.70			149		Bridge removed. Abutments remain.
9	Norfolk Southern Railroad bridge	Railroad	7.90	102	99		35	Fixed.
10	Ohio Turnipke bridges	Highway	8.80			80	30	Twin fixed

Harbor Regulations

(473) A **speed limit** of 6 mph (5.2 knots) is enforced in the harbor except in the outer harbor where the speed limit is 10 mph (8.7 knots). (See **33 CFR 162.155 and 207.570,** chapter 2, for regulations.)

(474) Local harbor regulations are established by the city of Huron and enforced by local law enforcement officials. Copies of the regulations may be obtained from the City Manager, Municipal Building, Huron, Ohio 44839.

Wharves

(475) Huron Harbor has deep-draft facilities on the E side of the Huron River and in the two slips that extend SE just inside the mouth of the river. (For a complete description of the port facilities, refer to Port Series No. 42, published and sold by the U.S. Army Corps of Engineers. See appendix for address.) The alongside depths given for the facilities described are reported depths. (For the latest depths, contact the operator.) The facilities described have highway and rail connections. The Norfolk Southern Railway Co., Ore Dock has water connections. During the closed navigation season, vessels moor in Slip No. 1. Special arrangements can be made for electrical connections.

(476) **The Pillsbury Co., Grain Elevator Wharf:** W side of Slip No. 2; 832-foot face; 27 feet alongside; deck height, 10½ feet at center and 6½ feet at ends; 2¼-million-bushel grain elevator; fixed tower equipped with a marine leg, and a loading spout, capacity 30,000 bushel per hour; shipment of grain; owned and operated by The Pillsbury Co.

(477) **Huron Lime Co., Stone Dock:** E side of the river mouth and the outer E side of Slip No. 1; total of 1,100 feet of berthing space; 28 to 24 feet alongside channel face, 24 to 16 feet alongside curved section, 16 to 17 feet along E side of Slip No. 1; deck height, 8 feet; one front-end loader; open storage for 120,000 tons of limestone; silos for 1,800 tons of lime; receipt of limestone; owned by Norfolk Southern Railway Co. and operated by Huron Lime Co.

Supplies

(478) Marine supplies are available in the city. Diesel fuel and provisions are available by truck from Sandusky.

Small-craft facilities

(479) Numerous small-craft facilities are on the W side of the lower mile of the Huron River. Transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out facilities, marine supplies, and launching ramps are available. Lifts to 20 tons are available for hull, engine, and electronic repairs.

Communications

(480) Huron has highway connections and is served by ConRail and Norfolk Southern Railway.

Chart 14830

(481) From Huron, the wooded shoreline trends NW for 9.7 miles to **Cedar Point** (41°29.5'N., 82°41.3'W.), the SE entrance point to Sandusky Bay. In this stretch, deep water is about 0.9 to 1.2 miles off except at Cedar Point where the shallow depths widen to 1.5 miles.

Charts 14830, 14844, 14842, 14845

(482) **Sandusky Harbor**, serving the city of **Sandusky, Ohio,** is in the SE part of Sandusky Bay about 50 miles W of Cleveland. The harbor is a major shipping point for coal. Sand, gypsum, and fish are also handled. The harbor is an excellent natural harbor of refuge for small craft.

(483) An unmarked **dumping ground** with a least reported depth of 30 feet is 2.7 miles N of Sandusky Harbor entrance channel.

Prominent features

(484) A large amusement park on Cedar Point, brightly lighted at night, is conspicuous. The most prominent object in the park is the 330-foot observation tower on the E side of Cedar Point, 0.9 mile from the N extremity. The Erie County Courthouse lighted clock tower in the city is also prominent.

(485) **Sandusky Harbor Breakwater Light** (41°30.0'N., 82°40.5'W.), 30 feet above the water, is shown from a white cylindrical tower with a green band on the outer end of the jetty that extends NE from Cedar Point. A fog signal is at the light.

Channels

(486) The harbor is entered from Lake Erie through a dredged entrance channel that leads SW from deep water in the lake along the NW side of a jetty extending NE from Cedar Point. Inside Cedar Point, the channel turns SSW across Sandusky Bay. About midway across the bay, the channel divides with the deeper channel leading W then S along a deep-draft wharf to a turning basin at the SW corner of the harbor. The shallower channel continues SSW to a channel leading W along the Sandusky docks to the turning basin.

(487) The dredged channels are marked by lighted and unlighted buoys and lighted ranges. The lighted clock tower of the Erie County Courthouse is prominent on the line of **017°** Inner Range which marks Upper and Lower Straight Channels.

(488) Federal project depths are 26 feet in Moseley Channel, 25 feet in the Upper Straight Channel and Upper Bay Channel, 24 feet in Lower Bay Channel and the turning basin, 22 feet in Dock Channel, and 21 feet in Lower Straight Channel. (See Notice to Mariners and latest edition of charts for controlling depths.)

(489) It is the recommendation of the Lake Carriers' Association that, at the junction of the straight channel and the bay channel, the master of an outbound vessel should slow down if necessary to avoid meeting vessels at the intersection. This recommendation should not be construed as relieving the inbound vessel of the obligation to exercise due caution in approaching the intersection.

Anchorages

(490) A special anchorage is in a basin on the E side of Sandusky Bay about 1.3 miles SE of the entrance. (See **33 CFR 110.1 and 110.83a,** chapter 2, for limits and regulations.)

Dangers

(491) In 1977, it was reported that the jetty extending NE from Cedar Point is partially submerged during periodic high water conditions.

Caution

(492) A submarine cable crosses the inner end of Moseley Channel; vessels are cautioned not to drag anchor in this area.

Fluctuations of water level

(493) In addition to the fluctuations of level that affect Lake Erie somewhat uniformly, strong winds produce abnormal fluctuations in Sandusky Bay. In combination with prevailing high or low water, these abnormal fluctuations may reach a maximum effect of 6 feet above or 2½ feet below Low Water Datum.

Towage

(494) Tugs for Sandusky are available from Cleveland or Toledo. (See Towage under Cleveland and Toledo.)

(495) Sandusky is a **customs port of entry.**

Quarantine, customs, immigration, and agricultural quarantine

(496) (See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(497) **Quarantine** is enforced in accordance with the regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

Coast Guard

(498) Search and rescue functions for Sandusky Harbor are handled by Marblehead Coast Guard Station, 4 miles NW of Cedar Point.

Harbor Regulations

(499) A **speed limit** of 10 mph (8.7 knots) is enforced in Sandusky Harbor. (See **33 CFR 162.155 and 207.560,** chapter 2, for regulations.)

Wharves

(500) Sandusky has numerous waterfront facilities along the S side of the harbor, but only a few deep-draft facilities. (For a complete description of the port facilities, refer to Port Series No. 42, published and sold by the U.S. Army Corps of Engineers. See appendix for address.) The alongside depths given are reported depths. (For latest depths, contact the operator.) Rail, highway, water, and electrical shore-power connections are available at the berths except at the Erie Sand and Gravel Co., Salt Dock where only highway connections are available.

(501) **Erie Sand and Gravel Co. Dock:** (41°27'24"N., 82°43'15"W.); 188-foot face; 14 to 12 feet alongside; deck height, 6 feet; open storage for 30,000 tons of materials; crawler crane for unloading sand; deep-draft vessels discharge by boom from Dock Channel; receipt of sand and gypsum; owned and operated by Erie Sand and Gravel Co.

(502) **Erie Sand and Gravel Co., Salt Dock:** 450 feet W of Erie Sand and Gravel Co. Dock; 150-foot face; 16 to 0 feet alongside; deck height, 3 feet; open storage for 160,000 tons of salt; deep-draft vessels discharge by boom from Dock Channel; receipt of salt; owned and operated by Erie Sand and Gravel Co.

(503) **Lower Lake Dock Co., Pier No. 3:** (41°27'32"N., 82°43'55"W.); 3,495-foot E side; 25 feet alongside; deck height, 12 feet; open storage for 850,000 tons of coal; one fixed car dumper with chute for loading vessels; winter mooring; shipment of coal; owned by Norfolk Southern Railway Co. and operated by Lower Lake Dock Co.

Supplies

(504) Deep-draft vessels do not normally obtain provisions at Sandusky. Vessels are supplied with bunker coal at Lower Lake Dock Co., Pier No. 3.

Small-craft facilities

(505) Sandusky Harbor has several marinas, the largest on the W side of Cedar Point. In 1977, the reported controlling depth in the entrance and basin of this marina was 11 feet. However, there are lesser depths in the approach to the marina. Gasoline, diesel fuel, water, ice, electricity, sewage pump-out facilities, marine supplies, hull, engine and electronic repairs, a 50-ton travel lift, and a launching ramp are available. Other facilities are along the S side of Sandusky Harbor. A small-craft basin is behind the ConRail fill 0.75 mile ENE of the courthouse clock tower.

(506) In the SE part of Sandusky Bay, a privately dredged and marked channel leads to a marina under construction in Pipe Creek. In October 1999, the channel had a reported controlling depth of 4 feet at midchannel. The highway bridge over the channel entrance has a 38-foot fixed span with a clearance of 21 feet. The channel is bordered on the W side by diked wetland areas.

Communications

(507) Sandusky has good highway connections and is served by the Norfolk Southern Railroad and ConRail. A small airport is SE of the city. Three ferry services connect Sandusky with Cedar Point; Kelleys Island; and Pelee Island, Kingsville, Ont., and Leamington, Ont.

Charts 14830, 14844, 14842

(508) **Sandusky Bay** extends W from its entrance between Cedar Point and Bay Point for about 15 miles to **Muddy Creek Bay**. **Sandusky River** flows into the S side of Muddy Creek Bay. Small craft can navigate through Sandusky Bay, Muddy Creek Bay, and upstream in the Sandusky River for about 15 miles to the Norfolk Southern Railway Bridge at the town of **Fremont, Ohio.** Depths of about 5 feet can be carried through Sandusky Bay, thence 2 to 4 feet through Muddy Creek Bay, and thence 2 to 19 feet in the river. The channels through the bays are indefinite and not marked. The entrances to Muddy Creek Bay and the Sandusky River are marked by uncharted buoys that are frequently moved to mark the best water. Small craft are cautioned to use the marked channel at the mouth of the river as submerged dikes extend from both sides of the river mouth.

(509) In May 1985, a submerged obstruction was reported in the midchannel at the mouth of the river in about 41°27'01"N., 82°59'57"W. In August 1987, a submerged obstruction was reported in the channel about 75 feet NW of Buoy 13 in about 41°26'59"N., 83°00'02"W.

(510) From **Martin Point,** about midlength of the S shore of Sandusky Bay, two bridges cross to Danbury, Ohio on the N shore. The east bridge is the ConRail bridge. The main draw of the bridge is a bascule span with a clearance of 9 feet, and three fixed spans have a maximum clearance of 8½ feet. The bridge has been filled solid in various places, causing strong currents to flow through the openings; caution is advised. Caution is also advised because of piles that bare near the bridge. An overhead power cable W of the ConRail bridge has a clearance of 62 feet through the main navigation

opening, which is marked by lights, and 32 feet through the other openings. The west bridge is the Ohio Route 2 highway bridge, a fixed span with a clearance of 43 feet. (See **33 CFR 117.1 through 117.59 and 117.853,** chapter 2, for drawbridge regulations.)

(511) The Ohio Turnpike I-80 and I-90 Bridge crossing the Sandusky River about 9 miles above the mouth has twin fixed spans with clearances of 40 feet. The Ohio Route 20 bridge about 13.5 miles above the mouth has a fixed span with a clearance of 53 feet. The Norfolk Southern Railway bridges that cross the river on either side of Bradys Island at the head of navigation at Fremont have fixed spans with clearances of 24 feet. Overhead cables crossing the navigable part of the river have a minimum clearance of 36 feet.

(512) A submerged breakwater off the S shore of Sandusky Bay 3.6 miles SW of Martin Point is marked by private lighted buoys. In July 1987, a sunken wreck was reported about 2 miles WNW of Martin Point in about 41°28'34"N., 82°51'57"W. A sunken wreck, covered ½ foot, is off the N shore of the bay 3.9 miles WNW of Martin Point.

(513) **Johnson Island**, in the NE corner of Sandusky Bay W of Bay Point, is connected to the N shore of the bay by a causeway having five openings. Each opening has a horizontal clearance of 50 feet with the center opening having a vertical clearance of 29 feet and each of the others 8 feet.

(514) From the Sandusky Harbor entrance channel N to Point Marblehead, there are several offlying shoal spots. **Bay Point Shoal,** with a least depth of 4 feet, is 1 mile E of Bay Point and is marked on the E side by a lighted buoy. A submerged rock is close to shore in about 41°31'13"N., 82°43'02"W. Shoal spots with depths of 22 to 24 feet are from 1.5 to 3 miles E of Point Marblehead and 1.7 to 2.7 miles N of Sandusky Harbor Breakwater Light.

(515) An unmarked **dumping ground** with a least reported depth of 30 feet is 3 miles E of Point Marblehead. Between Point Marblehead and the dumping ground, S to the Sandusky Bay entrance, are numerous submerged fish net stakes.

(516) **Point Marblehead** (41°32.2'N., 82°42.7'W.), marked by a light, is the E extremity of the peninsula that encloses the N side of Sandusky Bay.

(517) About 1 mile WNW of Point Marblehead are the Marblehead Stone Docks, two piers owned and operated by Lafarge North America. The W pier extends 800 feet into the lake and has depths of 26 to 15 feet along the outer 500 feet of the W side with a deck height of 8 feet. A mobile shuttle loads limestone into vessels at a rate of 2,000 tons per hour. The E side of the W pier and the W side of the E pier are used for loading barges. A prominent overhead conveyor, lighted at night, extends from the piers inland to the quarry.

(518) **Marblehead Coast Guard Station** is close W of Marblehead Stone Docks. A small sheltered basin at the station has depths of 8 feet decreasing to 6 feet at the edges.

(519) Automobile and passenger ferry services to Kelleys Island are available from a dock just W of the Coast Guard station.

(520) **Catawba Island** (41°35.0'N., 82°50.5'W.), W of Point Marblehead, juts N from the peninsula on the N side of Sandusky Bay and terminates in **Scott Point. Mouse Island,** useful as a radar target, is a small island on the shoal bank about 0.2 mile N of Scott Point. In the bight between Point Marblehead and Mouse Island, the depths are 18 feet about 1.3 miles off and shoal toward shore. The bottom is rock and boulder strewn. **Middle Harbor Shoal,** with a least depth of 2 feet, is marked on the N side by a lighted buoy about 2.4 miles SE of Mouse Island. A shoal bank with depths of 9 feet is 1.8 miles SE of Mouse Island. Within the bight are the facilities at Lakeside, East Harbor, and West Harbor.

(521) A lighted microwave tower is prominent 2 to 3 miles offshore of Catawba Island.

(522) At **Lakeside, Ohio,** about 2.2 miles WNW of Point Marblehead, a dock extends offshore about 600 feet into depths of 10 feet. Several smaller docks to the W extend into lesser depths. Berths with electricity, gasoline, water, marine supplies, sewage pump-out, and hull and engine repairs are available for small craft.

(523) Marblehead-Lakeside is a **customs station.**

(524) **East Harbor**, 3.9 miles W of Point Marblehead, is a shallow bay with an entrance channel between two parallel piers marked on the outer ends by private lights. The N shore of the harbor is a State park and recreation area, and the waters in the harbor are a public fishing area and game refuge. Numerous small-craft facilities are on the S side of the bay and E of the entrance channel. In 1970, the controlling depth was 5 feet in the entrance channel and thence S and W to the facilities on the S side of the bay. The basin on the E side of the entrance had a controlling depth of 3 feet. Private buoys mark the channel through the harbor.

(525) **West Harbor** is entered 2.5 miles NW of East Harbor through two entrance channels. The SE entrance is protected by converging jetties marked at their outer ends by lights. A dredged channel, marked by lights, buoys, and daybeaons, leads between the jetties and into the harbor to an inner channel within the harbor. In May 2004, the controlling depths were 2.2 feet (4.3 feet at midchannel) to the junction with the inner channel, thence 4.9 feet to Daybeacon 17, thence 3.9 feet to the upstream limit of the Federal project.

(526) The NW entrance channel is privately maintained and leads to a large small-craft harbor. The entrance is protected by jetties marked by lights at their outer ends. In June 1993, the reported controlling depth was 5 feet with 3 to 6 feet in the harbor. A fixed highway bridge at the head of the harbor has a reported clearance of 20 feet. Beyond the bridge, a dredged channel leads SW through West Bay to join the channel from the SE entrance. In May 2004, the controlling depth was 5.0 feet from the bridge SW through West Bay to the junction with the SE entrance channel.

(527) Boats drawing up to 3 feet can be accommodated at docks in the harbor. Gasoline, diesel fuel, water, ice, electricity, sewage pump-out facilities, marine supplies, launching ramps and hoists to 35 tons are available.

(528) Just W of Scott Point is the mainland terminus of the automobile and passenger ferry line operating to the islands N of Catawba Island. A depth of about 11 feet is at the outer face of the dock. About 400 feet W of the ferry dock is a dock of the Port Clinton Fish Co., with depths of about 4 feet alongside. Catawba State Park is on the W side of Catawba Island. A light marks the outer end of the park pier.

(529) Just SE of the State park pier, a pier marked at the outer end by a private light protects the SW side of the entrance to a small-craft basin. The entrance channel has depths of about 5 feet with 5 feet at the berths on the W side of the harbor and 3 feet at the berths on the E side. Gasoline, diesel fuel, water, ice, electricity, marine supplies, and hoists to 40 tons for hull, engine, and minor electronic repairs are available.

Charts 14830, 14844, 14842, 14846

(530) Between Catawba Island and **Locust Point** (41°36.2'N., 83°05.0'W.), a rounding projection 12 miles W, a broad open bight has depths less than 24 feet. The Portage River empties into the S side of the bight. A large shallow bank with depths less than 14 feet extends about 5.5 miles N and NE off Locust Point. A least depth of 2 feet, marked on the E side by a buoy, is about 4.7 miles NE of the point, and there are scattered patches of 3 to 10 feet elsewhere. **Niagara Reef,** a detached shoal with a least depth of 3 feet, is 6.8 miles NE of the point and is marked on the N side by a lighted buoy. Strangers should not attempt passage S of Niagara Reef.

(531) **Port Clinton, Ohio,** is at the mouth of the **Portage River,** about 29 miles SE of Toledo Harbor entrance. The river enters the lake at the S end of the bight immediately W of Catawba Island. This bight is quite shoal, the depths ranging from 6 feet off the end of the piers to 18 feet about 3.3 miles from shore. A lighted relay tower in the city near the inner end of the entrance channel is prominent.

Channels

(532) The harbor is entered through a dredged entrance channel leading from deep water in Lake Erie between two parallel piers upstream in Portage River for about 0.4 mile to the Monroe Street highway bridge. Lights mark the outer ends of the pier. In July 2003, the controlling depth was 8.2 feet in the entrance channel and between the piers to the Monroe Street highway bridge (except for a shoal area which extends into the right half of the channel just SE of the Port Clinton Yacht Club entrance). The channel lakeward of the piers is subject to shoaling.

Bridges

(533) The Monroe Street highway bridge, 0.4 mile above the river mouth, has a bascule span with a clearance of 9 feet. An overhead cable 0.1 mile above the bridge has a clearance of 83 feet. The ConRail bridge 1.5 miles above the mouth has a roller-lift span with a clearance of 13 feet. (See **33 CFR 117.1 through 117.59 and 117.851,** chapter 2, for drawbridge regulations.) The State Route 2 bridge, 3 miles above the mouth, has a fixed span with a clearance of 30 feet.

Harbor regulations

(534) A **speed limit** of 4 mph (3.5 knots) is enforced in the harbor by the city of Port Clinton.

Wharves

(535) The S side of the Portage River has three commercial facilities. Parker Boat Line operates a ferry between Port Clinton and Put-In-Bay, Port Clinton Fisheries receives fish at a wharf W of the ferry dock, and the Port Clinton Lumber Co. receives sand at a wharf on the W side of the Monroe Street bridge.

Small-craft facilities

(536) Above the Monroe Street bridge, several marinas provide transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out, and marine supplies. Hoists to 45 tons and a 150-ton marine railway are available for hull, engine, and electronic repairs. A marina on the lakefront about 2 miles WNW of Port Clinton provides gasoline, diesel fuel, water, ice, electricity, sewage pump-out, and marine supplies. A public launching ramp is just E of the marina.

Charts 14830, 14846

(537) About 4 miles W of Port Clinton, a **danger zone** for small arms and artillery firing extends 6.5 miles NE, 10 miles N, and 12 miles NW from **Camp Perry.** (See **33 CFR 334.850,** chapter 2, for limits and regulations.) A jetty extends from the shore at Camp Perry to a pier about 1,000 feet offshore.

(538) **Toussaint River** is entered about 8 miles NW of Port Clinton on the E side of Locust Point through an entrance channel that crosses a bar, and in March-April 2004, was shoal in several places. The channel is marked by seasonal buoys. The buoys are uncharted as they are frequently shifted in position to mark the best water. Mariners should use caution and seek local knowledge before navigating the entrance channel.

(539) An overhead power cable with a reported clearance of 65 feet crosses the river about 1.4 miles above the mouth. A marina is about 1.6 miles above the mouth and can provide transient berths, gasoline, water, ice sewage pump-out facilities, and launching ramps are available.

(540) The cooling tower of the Davis-Besse Nuclear Power Station is prominent NW of the mouth of the Toussaint River.

(541) A **security zone** has been established in the waters off Locust Point, just NW of the Toussaint River mouth. (See **33 CFR 165.1 through 165.8, 165.30 through 165.33, and 165.915**, chapter 2 for limits and regulations.)

(542) Between Locust Point and **Cedar Point,** 15 miles NW, the 18-foot contour decreases from about 7 miles offshore at Locust Point to 2.5 miles at Reno Beach and then increases to 4.5 miles at Cedar Point. Several isolated 17-foot spots are beyond the 18-foot contour NE of Cedar Point.

(543) **Long Beach**, a private harbor for small boats, is on the N side of Locust Point. A private **159°** lighted range marks the entrance to the basin.

(544) **Turtle Creek**, about 2.5 miles W of Locust Point, has two marinas at its mouth. In 1977, the reported controlling depth in the mouth of the creek was 1 to 2 feet. The entrance is marked by a private **129°** lighted range and buoys. Numerous submerged piles are in the mouth of the creek. Caution is advised. Transient berths, gasoline, water, ice, launching ramps, and a 60-ton hoist are available.

(545) A highway bridge with a reported clearance of 10 feet crosses Turtle Creek just inside the entrance.

(546) **Ward Canal** is entered about 6 miles WNW of Turtle Creek. Two jetties protect the entrance channel. A light marks the outer end of the E jetty. In May 1981, a sandbar was reported across the mouth of the canal. Caution is advised. Small-craft facilities are available in the canal.

(547) **Cooley Creek** is entered 2.9 miles NW of Ward Canal. The breakwaters that protect the entrance channel are marked at the outer ends by lights. Facilities in the creek provide transient berths, gasoline, diesel fuel, water, ice, electricity, marine supplies, and launching ramps. Hoists to 75 tons are available for hull and engine repairs.

Charts 14830, 14846, 14847

(548) **Maumee Bay** is a large shallow expanse forming the SW corner of Lake Erie. The bay has prevailing depths of less than 10 feet and is obstructed by several dumping grounds. A dredged channel leads from deep water in Lake Erie SW through the bay to the mouth of the Maumee River.

(549) **Toledo Harbor**, serving the city of **Toledo, Ohio,** is at the W extremity of Lake Erie. The harbor includes the lower 7 miles of the **Maumee River** and a channel about 18 miles long through Maumee Bay from deep water in Lake Erie to the mouth of the river. The principal cargoes handled at the port are coal, iron ore, grain, petroleum products, and general cargo.

Prominent features

(550) The TV towers S to SW of Cedar Point and the stacks of the Consumers Power Company 6.6 miles WNW of Toledo Harbor Light are conspicuous in the approach to the harbor.

(551) **Toledo Harbor Light** (41°45.7'N., 83°19.7'W.), 72 feet above the water, is shown from a square brick buff-colored dwelling with an attached fog-signal house on the NW side of the entrance channel about 8.5 miles NE of the river mouth. A fog signal is at the light. Maumee Bay Entrance Light 2, about 8 miles NE of Toledo Harbor Light, is equipped with a radar transponder (Racon) and a fog signal.

Channels

(552) A dredged entrance channel, marked by buoys, lights, and a **237.4°** lighted range, leads SW for about 18 miles from deep water in Lake Erie through the shallow water of Maumee Bay to the mouth of Maumee River, thence upstream for about 7 miles. Maumee Mooring Basin is on the NW side of the channel at the mouth of the river, and turning basins are 2.7, 6.3, and 7 miles above the mouth.

(553) The Federal project depths are 28 feet from deep water in the lake through the entrance channel to the mouth of the river and in Maumee Mooring Basin; thence 27 feet in the river channel to the upstream

limit of the project with 20 feet in Riverside Turning Basin, 2.7 miles above the mouth; thence 27 feet in the turning basin 6.3 miles above the mouth; and thence 18 feet in the turning basin at the head of the project, 7 miles above the mouth. (See Notice to Mariners and latest edition of charts for controlling depths.)

(554) No distinct bars form in the dredged channel, which is, however, subject to considerable fill along its sides each year. Depths in Maumee Bay outside of the improved channel are less than 10 feet, and navigation is possible for small boats only. In the lake, dredge operations have thrown up a ridge of earth along the edges of the channel. This ridge may rise as much as 3 feet above the natural lake bottom. In order to avoid the ridges, deep-draft vessels should pass **Safe Water Lighted Buoy** (41°50.1'N., 83°10.1'W.) close aboard and enter the entrance channel between the outermost Lakeland buoys.

(555) A diked disposal area is on the SE side of the entrance channel at the mouth of the Maumee River. The disposal area, about 242 acres, extends about 0.9 mile into the bay from the shore. A turning area and pump-out platform marked by lights, are on the NW side of the disposal area.

(556) Upstream of the dredged channel in the Maumee River, the channels are irregular and of uncertain depths, with numerous shoals and rock bars. Boats with local knowledge drawing less than 5 feet can usually pass as far as **Perrysburg, Ohio,** about 7 miles above Toledo.

Fluctuations of water level

(557) In addition to the fluctuations that affect Lake Erie somewhat uniformly, sudden abnormal changes due to wind frequently occur at this port. The observed wind-produced fluctuations, in combination with prevailing high or low water, range between extremes of 8 feet above and 7 feet below Low Water Datum. NE winds can increase water levels as quickly as 2 feet in 1 hour. Ice jams near the mouth of Maumee River have raised the water in the river as high as 12 feet above Low Water Datum.

(558) Mariners are cautioned that when water levels are above Low Water Datum, bridge clearances are correspondingly reduced. The Toledo-Lucas County Port Authority, telephone, 419–243–8251, will measure the height of masts upon request.

(559) A National Ocean Service water level gage house is near the W shoreline of the river adjacent to the Toledo

Structures arcoss Maumee River at Toledo
***Miles above the mouth of the river**
****Clear width in feet proceeding upstream**

No.	Location and Name	Kind	Miles*	Clear width in feet of draw or span opening**			Clear height in feet above Low Water Datum	Remarks
				Right	Left	Center		
1	Overhead cable	Power	0.92				154	
2	Overhead cable	Power	1.03				129	132 feet over channel.
3	Overhead cable	Power	1.06				146	
4	CSX Railroad Bridge	Railroad	1.07	143	145		22	Swing. Note 2.
5	Norfolk Southern RR bridge	Railroad	1.80	134	134		20	Swing.
7	Craig Memorial Bridge	Highway	3.30			200	38	Bascule. 44 feet at center.
8	Overhead cable	Power	4.06				140	
9	Martin Luther King, Jr. Memorial Bridge (Cherry Street)	Highway	4.30			200	21	Bascule. 31 feet at center.
10	Anthony Wayne Bridge	Highway	5.16			747	104	Fixed. Note 1.
11	ConRail bridge	Railroad	5.76	115	115		17	Swing.
12	Overhead cable	Power	5.76				105	
13	Michael DiSalle Bridge	Highway	6.73	110	110		45	Fixed.
14	CSX Railroad bridge	Railroad	11.38	110	110		53	Swing.
15	Overhead cable	Power	11.40				110	
16	Ohio Turnpike bridges	Highway	11.42	110	110		37	Twin fixed.
17	Perrysburg-Maumee Bridge	Highway	14.72	100	100		29	

See **33 CFR 117.1 through 117.59 and 117.855**, chapter 2, for drawbridge regulations.

Note 1.–Bridge has a vertical clearance of 108 feet (32.9 meters) on the centerline, decreasing to 104 feet (31.7 meters) at the channel limits and 97 feet (29.6 meters) at the harbor lines.

Note 2.–Mariners are requested to make initial calls to the CSX Railroad bridge at Mile 1.07 over Maumee River at least 45 minutes prior to intended time of passage through the draw. A second call should be made when approximately 15 minutes from the bridge to help ensure timely openings.

Coast Guard Station. A submerged intake pipe extends about 300 feet riverward from the gage house. Mariners should avoid all movement of deep-draft vessels or the dragging of anchors in the vicinity of the water intake pipe.

(560) Upon request, the Toledo Coast Guard Station will broadcast water level information in the following format:

(561) "This is the U.S. Coast Guard Toledo Station. The National Ocean Service water level gage at this station now reads plus/minus inches above/below Low Water Datum. This is the U.S. Coast Guard Toledo Station. Out."

Currents

(562) The current in the Maumee River is about 1 mph.

(563) The Coast Guard reported a hazardous condition in 1994 at the ConRail bridge at Mile 5.76. Currents in excess of 2 knots were reported in the restricted channel at the bridge following heavy rains. The current appears to deflect off the east river bank causing a sheer towards the west bank. Caution is advised when transiting this area.

Weather, Toledo and vicinity

(564) Toledo, OH, located on the extreme southwest shore of Lake Erie and in the north-central part of the state, averages about 15 days each year with maximum temperatures in excess of 90°F (32.2°C). July is the warmest month with an average high of 84°F (28.9°C) and an average minimum of 61°F (16.1°C). January is the coolest month with an average high of 31°F (-0.6°C) and an average minimum of 16°F (-8.9°C). The

highest temperature on record for Toledo is 104°F (40°C) recorded in July 1995 and the lowest temperature on record is -20°F (-28.9°C) recorded in January 1984. About 140 days each year sees temperatures below 32°F (0°C) and an average 16 days each year records temperatures below 5°F (-15°C). Every month has seen temperatures at or below 40°F (4.4°C) and every month except July and August has recorded temperatures below freezing (0°C).

(565) The average annual precipitation for Toledo is 32.4 inches (823 mm) which is fairly evenly distributed throughout the year. Precipitation falls on about 205 days each year. The wettest month is June with 3.6 inches (91 mm) and the driest, February, averages only 1.7 inches (43 mm). An average of 38 thunderstorm days occur each year with June and July being the most likely months. Snow falls on about 78 days each year and averages about 37 inches (940 mm) each year. December through February each average greater than eight inches (203 mm) per year while January averages 10 inches (254 mm). Greater than ten inch (254 mm) snowfalls in a 24-hour period have occurred in December and January and 14 inches (356 mm) fell in one 24-hour period during December 1974. About eight days each year has a snowfall total greater than 1.5 inches (38 mm) and snow has fallen in every month except June, July, and August. Fog is present on average 162 days each year and is evenly distributed throughout the year with a slight maximum in August and September.

(566) The prevailing wind direction in Toledo is the west-southwest. The winter months are the windiest period however a peak gust of 65 knots occurred in August 1988.

(567) (See Page T-6 for **Toledo climatological table.**)

Towage

(568) Tugs to 2,200 and 1,400 hp are available from Gaelic Tugboat Co. or Great Lakes Towing Co., respectively. Arrangements for tugs are made through the companies' dispatchers at 419-243-8972 or 800-321-3663, respectively. Great Lakes Towing Co. has VHF-FM capability for tug arrangements. At least 3 hours advance notice is requested.

(569) Vessels proceeding upstream to the grain elevators near the head of the Federal project usually require the assistance of tugs, but vessels proceeding to the general cargo wharves below the bridges generally do not require assistance.

(570) Toledo is a **customs port of entry.**

Quarantine, customs, immigration, and agricultural quarantine

(571) (See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(572) **Quarantine** is enforced in accordance with the regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

Coast Guard

(573) A Coast Guard **Marine Safety Office** is at Toledo. (See appendix for address.) Toledo Coast Guard Station is on the NW side of the mouth of the Maumee River.

Harbor regulations

(574) Speed in harbor. In Maumee Bay, Lakeland of Maumee River Lighted Buoy 49, no vessel greater than 100 feet long shall exceed 12 mph (10.4 knots). No person shall operate any vessel over 40 feet long in the harbor at a speed greater than 6 mph (5.2 knots). Vessels greater than 100 feet long shall not overtake another vessel in the harbor. (See **33 CFR 162.150,** chapter 2, for speed limits and regulations.)

(575) Copies of the harbor regulations may be obtained from City of Toledo, Division of Streets, Bridges and Harbor, 1189 West Central Avenue, Toledo, Ohio 43610.

Harbor Patrol

(576) The Toledo Harbor Patrol maintains an office adjacent to the Coast Guard station.

Wharves

(577) Toledo has numerous facilities along both sides of the Maumee River. Only the deep-draft facilities are described. (For complete information on the port facilities, refer to Port Series No. 44, published and sold by the U.S. Army Corps of Engineers. See appendix for address.) The depths alongside for the facilities described are reported depths. (For the latest depths, contact the operator.) All the facilities described have highway connections, and most have railway connections. Water and electrical shore-power connections are available at many of the piers, wharves, and docks. General cargo at the port is generally handled by ships' tackle. Specialized equipment is described under the individual facility. Many of the harbor facilities are used for mooring of vessels during the closed navigation season.

Facilities on the E side of the river:

(578) **CSX Toledo Lakefront Ore Docks, TORCO Slip No. 1:** (41°41'00"N., 83°26'55"W.); 1,133-foot E side, 1,815-foot W side; 27 feet alongside; deck height, 10 feet; open storage for 923,000 tons of material; receipt of iron ore pellets; owned by CSX Transportation, Inc.; operated by Toledo Ore Co.

(579) **CSX Toledo Presque Isle Coal Dock, Slip No. 1:** (41°41'40"N., 83°27'30"W.); 1,760-foot E side, 1,398-foot W side; 27 feet alongside; deck height, 12 feet; one traveling coal loading tower, rate 6,000 tons per hour; shipment of coal and petroleum coke; bunkering vessels; owned by Toledo-Lucas County Port Authority and operated by CSX Transportation-Toledo Docks

(580) **CSX Toledo Presque Isle Coal Docks, Slip No. 2:** (41°41'38"N., 83°27'39"W.) across slip W of CSX Toledo Presque Isle Coal Docks, Slip No. 1; 1,993-foot E side; 1,124 feet of berthing space along W side; 27 feet alongside; deck height, 12 feet; shipment of coal and occasional receipt of limestone, ore, and petroleum coke; bunkering vessels; owned by Toledo-Lucas County Port Authority and operated by CSX Transportation-Toledo Docks.

(581) **Toledo-Lucas County Port Authority Facility No. 1 Wharf:** (41°41'19"N., 83°28'08"W.); 4,196-foot face; 27 feet alongside; deck height, 11 feet; 120,000 square feet covered storage; tank storage for 2.5 million gallons of liquid cargo; two traveling gantry cranes, four diesel electric cranes, and two diesel crawler cranes; receipt and shipment of conventional and containerized general cargo and miscellaneous dry bulk materials, metal products and processed foods; owned by Toledo-Lucas County Port Authority and operated by Toledo World Industries, Inc.

(582) **BP Oil Co., Toledo Refinery Marine Dock:** (41°40'50"N., 83°28'55"W.); 800 feet above CSX Railroad bridge; 257-foot face; 21 feet alongside; deck height, 7½ feet; pipeline extends to tank storage, capacity 113,600 barrels; shipment and occasional receipt of petroleum products; owned by Norfolk Southern Railway Co. and operated by BP Oil Co.

(583) **Sunoco MidAmerica Marketing and Refining Co. Pier Slip:** (41°39'34"N., 83°30'35"W.); 100 feet below Craig Memorial Bridge; 918 feet of berthing space; 18 to 27 feet alongside; deck height, 12 feet; tank storage for about 2½ million barrels; shipment of fuel oil and carbon oil black; owned and operated by Sunoco MidAmerica Marketing and Refining Co.

(584) **ADM/Countrymark, Toledo Elevator Wharf:** (41°37'33"N., 83°31'59"W.); 1,790 feet of berthing space; 27 feet alongside; deck height, 10 feet; three vessel-loading spouts, total combined loading rate 80,000 bushels per hour; 9 million-bushel grain elevator; shipment of grain; owned and operated by ADM/Countrymark, Inc.

Facilities on the W side of the river:

(585) **Clark Refining and Marketing Co. Wharf:** (41°40'31"N., 83°29'31"W.): immediately above Norfolk Southern Railway bridge; 527-foot SW face; 18 feet alongside; deck height, 10 feet; tank storage for 216,000 barrels; receipt and shipment of petroleum products; owned and operated by Clark Refining and Marketing Co.

(586) **Arms/Criscione Grain Co. Wharf:** (41°39'46"N., 83°30'40"W.) immediately below Craig Memorial Bridge; 675-foot face, 26 feet alongside; deck height, 12 feet; covered storage for 75,000 tons of materials; open storage for 500,000 tons of materials; receipt of stone, salt, fertilizer, and oats; owned and operated by Arms Dock Co. and Criscione Grain Co.

(587) **City of Toledo, Salt Wharf:** (41°39'30"N., 83°31'11"W.); 0.4 mile above Craig Memorial Bridge; 1,280-foot face; 12 feet alongside; deck height, 10 feet; open storage for 45,000 tons of material; receipt of salt; owned by Norfolk Southern Railway and operated by City of Toledo.

(588) **LaFarge Corp., Toledo Terminal Wharf:** (41°39'16"N., 83°12'38"W.); immediately below Martin Luther King, Jr. Memorial Bridge; 1,061 feet of berthing space; 18 to 22 feet alongside; deck height, 8 feet; receipt of bulk cement; owned and operated by LaFarge Corp.

(589) **The Andersons, Toledo Kuhlman Drive Terminal Wharf:** (41°37'52"N., 83°32'00"W.); 0.7 mile above Anthony Wayne Bridge; 1,030-foot face; 27 feet alongside; deck height, 9 and 15 feet; six vessel-loading spouts, combined loading rate 50,000 bushels per hour; 7-million-bushel grain elevator; shipment and receipt of grain, receipt of dry bulk and liquid fertilizer; owned and operated by The Andersons, Inc.

(590) **Kuhlman Corp., Upper Dock:** (41°37'40"N., 83°32'12"W.); immediately below Michael DiSalle Bridge; 340 feet of berthing space; one diesel crawler crane; covered storage for 136,500 tons of fertilizer, open storage for 150,000 tons of miscellaneous dry bulk; receipt of dry bulk fertilizer, salt, stone, and petroleum coke; owned and operated by Kuhlman Corp.

Supplies

(591) All types of marine supplies and provisions are available at Toledo. Water can be obtained at most berths. Bunker fuel is available by barge at most berths, by pipeline at refinery landings, and by truck at some wharves.

Repairs

(592) All types of above- and below-the-waterline repairs to hulls, boilers, engine and deck machinery, and electronic equipment can be made in the harbor. Toledo Shipyard has two drydocks on the E side of the river about 2.5 miles above the mouth. The largest has a length of 800 feet with widths of 100 feet at the top and 83 feet at the keel blocks. The depth over the sill is 14 feet. Hans Hansen Welding Co., on the W side of the river 2 miles above the mouth, has a 50-ton hoist that

can handle 75-foot vessels. Merce Boiler and Welding Co. performs repairs to vessels at their berths.

Small-craft facilities

(593) Several marinas at Toledo provide transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out, marine supplies, and launching ramps. A 40-ton hoist is available for hull and engine repairs.

Communications

(594) Toledo is served by nine railroad lines and has good highway connections. Several airports are near the city.

(595) **Ottawa River** empties into Lake Erie about 3.5 miles N of the mouth of the Maumee River. The river is used by small boats drawing 2 to 4 feet. In May 1980, a submerged obstruction was reported in the approach to the river in about 41°44.5'N., 83°27.3'W. Fred C. Young fixed highway bridge about 2 miles above the mouth has a clearance of 14 feet. Several marinas on the river provide gasoline, water, electricity, sewage pump-out, launching ramps, marine supplies, and hoists to 20 tons for hull and engine repairs. A **slow-no wake speed** is enforced on the river.

(596) **Shantee Creek** and **Halfway Creek** empty into Lake Erie just N of the mouth of Ottawa River. A **slow-no wake speed** is enforced on both creeks.

Charts 14830, 14846

(597) From **North Cape,** on the N side of Maumee Bay, N to the mouth of the River Raisin, the shore is low and wooded. The 18-foot contour varies from 9 miles offshore at Toledo to 3 miles offshore at Monroe. The **State boundary** between Ohio and Michigan is about 2.5 miles N of the mouth of the Maumee River.

(598) **Toledo Beach** is a small-craft harbor about 6.3 miles NW of Toledo Harbor Light. The entrance channel is marked by a private **290°** lighted range, and the ends of the breakwaters are marked by private lights. In 2003, depths of 9 feet were reported in the entrance channel. Facilities in the harbor provide transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out, and some marine supplies. A 60-ton hoist is available for hull and engine repairs.

(599) **Otter Creek**, 1.3 miles N of Toledo Beach, has a small-craft harbor inside the mouth. The entrance channel to the creek is 25 to 30 feet wide between two short piers. Two private lights on the S pier form a **284°** range for approaching the creek. Depths in the approach and creek are 1 to 3 feet. In 1985, shoaling to an unknown extent was reported about 200 feet, 095° from the front range light. Overhead power cables cross the creek about 1,200 feet above the mouth and have a reported clearance of 50 feet. Facilities in the creek can provide gasoline, water, ice, sewage pump-out, and some marine supplies. A hoist can handle 38-foot vessels for hull and engine repairs.

(600) **Bolles Harbor**, Mich., is a small-craft harbor at the mouth of **La Plaisance Creek,** about 2.7 miles SW of the mouth of the River Raisin. Gasoline, water, electricity, haul-out facilities, and launching ramps are available.

Channels

(601) A dredged entrance channel leads NW from Lake Erie through **La Plaisance Bay** to the mouth of La Plaisance Creek, thence upstream for about 0.8 mile. A jetty is on the W side of the mouth and a diked disposal area extends about 1,700 feet Lakeland from the E side of the mouth. The entrance channel is marked by seasonal lighted and unlighted buoys, a daybeacon, and a **341.5°** lighted range. Lights mark the outer end of the jetty, the W side of the creek mouth, and the SW corner of the diked disposal area. In June 2003-May 2004, the controlling depths were 5.5 feet in the entrance and through the mouth of the creek for about 0.7 mile (except for shoaling to 1.1 feet along the W side of the entrance channel near the end of the W jetty), thence 3.3 feet to the head of the project.

(602) A diked disposal area enclosing the berm is on the E side of the entrance channel.

(603) A **slow-no wake speed** is enforced in La Plaisance Creek. A marina developed by the Michigan State Waterways Commission is in the harbor basin. Marinas in the creek provide transient berths, gasoline, diesel fuel, water, electricity, sewage pump-out, marine supplies, and launching ramps. A 20-ton hoist can handle 50-foot vessels for hull and engine repairs.

(604) **Monroe Harbor** is within the mouth of the **River Raisin,** which flows into the W end of Lake Erie about 15 miles NNE of the mouth of the Maumee River. Two 816-foot lighted stacks are prominent near the mouth of the River Raisin.

Channels

(605) A dredged entrance channel leads from the deep water in Lake Erie to the mouth of the River Raisin, thence to a turning basin with its upper end 1.5 miles above the mouth. The entrance channel is marked by lighted and unlighted buoys and a range. In May 2003-September 2004, the midchannel controlling depth was 17.4 feet in the entrance channel to the mouth of the river, thence the controlling depth was 19.3 feet in the river channel to the turning basin with gradual shoaling to 8 feet at the head of the project, thence depths of 17 to 18 feet were available in the turning basin with lesser depths in the NW corner. The

channel is subject to extensive shoaling from waterborne silt and littoral drift from Lake Erie.

Bridges

(606) Two overhead power cables with a minimum clearance of 160 feet cross the River Raisin 0.75 mile above the mouth. Another cable, with a clearance of 60 feet, crosses the river about 1.7 miles above the mouth. The Detroit-Toledo Freeway bridge 2.1 miles above the mouth has a fixed span with a clearance of 23 feet.

Harbor regulations

(607) A **speed limit** of 10 mph (8.7 knots) is enforced in the entrance channel and 6 mph (5.2 knots) in the river channel. (See **33 CFR 162.145,** chapter 2, for regulations.)

Towage

(608) Tugs for Monroe Harbor are available from Detroit. (See Towage under Detroit.)

Wharves

(609) Monroe Harbor has four deep-draft facilities. (For a complete description of the port facilities, refer to Port Series No. 45, published and sold by the U.S. Army Corps of Engineers. See appendix for address.) The alongside depths given are reported depths. For information on the latest depths, contact the operators.

(610) **Detroit Edison Co., Monroe Plant Wharf:** S side of the mouth of the river; 1,550-foot face; 21 feet alongside; deck height, 12 to 15 feet; open storage for 2 million tons of coal; receipt of coal; owned and operated by Detroit Edison Co.

(611) **Holnam, Monroe Dock:** SW side of the river, 0.4 mile below turning basin; 700 feet of berthing space; 12 to 20 feet alongside; deck height, 12 feet; 8 acres of open storage with a capacity for 40,000 tons of petroleum coke; receipt of petroleum coke; owned and operated by the Holnam, Inc.

(612) **Detroit Bulk Materials, Port of Monroe Bulk Cargo Dock:** SW side of the river, 500 below turning basin; 1,547 feet of berthing space; 12 to 21 feet alongside; deck height, 6 feet, natural bank; 16 acres of open storage; receipt of logs by barge and occasional receipt of miscellaneous dry bulk commodities and conventional general cargo; owned by Monroe Port Commission and operated by Detroit Bulk Materials.

(613) **Port of Monroe, General Cargo Wharf:** E side of turning basin; 1,060 feet of berthing space; 18 feet alongside; deck height, 7 to 9 feet; five storage tanks, capacity 166,000 barrels; receipt of asphalt; owned and operated by Monroe Port Commission.

Small-craft facilities

(614) A marina is just W of the Detroit-Toledo Freeway bridge (I-75) on the N side of the river. Transient berths, gasoline, water, electricity, sewage pump-out and marine supplies are available. Diesel fuel can be brought in by truck. Two forklifts and a 15-ton travel lift are available for hull and engine repairs and haul-out. A public boat launch ramp is on the S side of the river behind **Sterling Island.**

(615) From the mouth of the River Raisin, the shoreline trends N about 4 miles and then E about 2 miles to **Stony Point,** a narrow peninsula extending about 0.5 mile S into the lake. **Brest Bay** is the bight formed on the W side of the point. A wreck covered 17 feet is 1.9 miles SSE of Stony Point. In August 1982, a dangerous sunken wreck was reported about 1.5 miles SW of Stony Point in about 41°55.0'N., 83°17.0'W.

(616) At **Sandy Creek,** about 2 miles N of Monroe Harbor, on the W side of Brest Bay, is a small-boat harbor. Sterling State Park is on the S side at the entrance to the creek; berths with electricity and a launching ramp are at the park. Private buoys mark the entrance channel. In 1977, depths of 3 to 4 feet were reported in the entrance with 4 feet alongside the piers. Shoaling was reported on the S side of the entrance. In May 1981, severe shoaling was reported in the approach to the creek. Transient berths, gasoline, water, ice, and electricity are available inside the creek.

(617) **Stony Creek** empties into the N side of Brest Bay. Spoil banks that extend SE from the mouth of the creek protect the entrance channel to the creek. Piles mark the channel between the spoil banks. Submerged rocks are close S of the channel. In 1977, it was reported that a submerged pipeline, covered 1 foot, crosses the entrance to the creek, limiting the harbor to small craft. A marina inside the creek mouth provides gasoline, ice, and some marine supplies. A 3-ton lift is available for engine repairs.

(618) On the E side of Stony Point, the 18-foot curve is about 0.6 mile offshore, increasing to 3.8 miles off at Swan Creek. From Swan Creek to **Pointe Mouillee,** on the W side of the mouth of the Detroit River, depths are generally less than 18 feet except for the dredged channels leading to the Detroit River.

(619) The water intake channel of the Enrico Fermi Power Plant is 2 miles N of Stony Point. Private lights mark the dikes on either side of the channel. Two 403-foot cooling towers at the plant are prominent.

(620) A **security zone** has been established in the waters off the Enrico Fermi Power Plant, between Stony Point and Swan Creek. (See **33 CFR 165.1 through 165.8, 165.30 through 165.33, and 165.915**, chapter 2 for limits and regulations.)

(621) **Swan Creek** is about 3 miles N of Stony Point. The entrance to the creek is marked by seasonal, private lighted and unlighted buoys and a **315°** lighted range. Inside the entrance, daybeacons mark the N limit of the channel. In 1977, a controlling depth of 2 feet was reported in the entrance channel. In 1985, an obstruction was reported in the entrance channel in about 41°58'32"N., 83°14'42"W. A **slow-no wake speed** is enforced in the creek. Transient berths, gasoline, water, ice, electricity, sewage pump-out facilities, limited marine supplies, a 10-ton lift, and hull and engine repairs are available.

Charts 14830, 14848

(622) **Detroit River Light** (42°00.0'N., 83°08.5'W.), 55 feet above the water, is shown from a white conical tower, upper part black, on a hexagonal pier in the entrance to the Detroit River E of Pointe Mouillee. A fog signal and racon are at the light.

(623) An irregularly shaped diked disposal area is about 2.5 miles W of Detroit River Light. A dredged channel, marked by buoys, leads W from the light to the disposal area, but is not intended for public use.

Charts 14820, 14830

(624) For about 25 miles W from a line between Point Marblehead on the S shore and Point Pelee on the N shore, Lake Erie is rendered foul by a group of islands and shoals. The main route for large vessels is through Pelee Passage in the N part of the area, but other passages of limited capacity are also available to the S. Submerged fish net stakes may be encountered throughout the W end of Lake Erie.

(625) The **International boundary** between the United States and Canada extends through this area in a series of straight lines bearing from the E into the NW.

Charts 14830, 14844, 14842

(626) **South Passage** extends along the S shore of Lake Erie, bounded by Point Marblehead and Catawba Island on the S and Kelleys Island, South Bass Island, and Green Island on the N. Although it is obstructed by numerous shoals, a depth of 16 feet can be carried through the passage.

(627) **Kelleys Island** is about 4 miles N of Point Marblehead with a deep channel 2.7 miles wide between. The island, about 3 miles long E and W and about 2 miles wide N and S, is bordered on the E side by a rocky bank that extends 0.7 mile off. A buoy marks the extent of the bank E of **Long Point,** the NE point of the island. The other shores of the island should not be approached closer than 0.25 mile except at the landings. W of Long Point, an open bay has depths of 18 feet to within 0.4 mile of the shore. A dangerous sunken wreck is 0.4 mile W of Long Point. Kellstone, Inc. has a dock on the W side of the island, and a ferry dock with service to Marblehead and Sandusky is on the SW side of the island. A small-craft basin is on the E side of the broad bight on the S side of the island. Jetties protect the entrance channel to the basin. In May 1980, shoaling to 4 feet was reported to extend 75 feet W from the outer end of the S jetty. The basin has a depth of about 8 feet. Gasoline, water, and ice are available.

(628) W of **Carpenter Point,** the W point of Kelleys Island, several submerged rocks are covered less than 18 feet. A rock, covered 12 feet, is marked on the S side by a lighted buoy 0.6 mile WNW of Carpenter Point. A wreck, covered 17 feet, is 0.6 mile N of the point.

(629) **American Eagle Shoal**, extending W from Carpenter Point, has a least depth of 10 feet about 1.7 miles W of the point. **South Shoal,** with depths of 15 to 18 feet, continues W from American Eagle Shoal. These shoals lie on the NE side of the vessel route through South Passage. Numerous submerged net stakes, covered 13 to 18 feet, are in or near the vessel route SE of South Shoal.

(630) **Scott Point Shoal**, W of South Shoal on the SW side of the vessel route, is rocky and has a least depth of 11 feet at the NE end where it is marked by a lighted buoy. From the buoy, the shoal extends SW to within 0.6 mile of **Mouse Island. Mouse Island Reef,** with a least depth of 9 feet, is on the SW side of the vessel route, 1 mile WNW of Scott Point Shoal. **Starve Island Reef,** with a least depth of 7 feet, is on the NE side of the vessel route and is marked off its W side by a lighted buoy. **Starve Island,** 1 mile N of Starve Island Reef, is on a shoal bank off the SE side of South Bass Island. The shoal bank extends from South Bass Island to an 8-foot spot 0.5 mile SE of Starve Island. A deepwater passage about 0.4 mile wide is between the 8-foot spot and Starve Island Reef.

(631) **South Bass Island**, about 3.5 miles long NE and SW, is 2.5 miles N of Mouse Island and 5 miles NW of Kelleys Island. Shoals extend 0.2 to 0.5 mile off the SE side of the island except at Starve Island, and the W side of the island is deep-to. **South Bass Island Light** (41°37'44"N., 82°50'29"W.), 95 feet above the water, is shown from a white skeleton tower with a red and white diamond-shaped daymark on the SW point of the island.

(632) **Put-In-Bay**, a semicircular inlet on the N side of South Bass Island, is protected on the W side by **Peach Orchard Point.** A shoal with a least depth of 2 feet

extends 0.25 mile NE from the point and is marked at the outer end by a lighted buoy. **Gibraltar Island** is a small bold islet in the W part of the bay on the E side of Peach Orchard Point. Shallow water is between the SW side of the island and the shore. A buoy marks a detached shoal with a least depth of 10 feet on the E side of the bay.

(633) **Perrys Victory and International Peace Memorial**, commemorating his victory in the naval battle of 1813, is a conspicuous landmark on the E side of Put-In-Bay on the narrow constriction of South Bass Island. The 335-foot monument is a granite tower marked by a light and surmounted by a glass-covered bronze bowl.

(634) **Put-In-Bay, Ohio**, a harbor on the S side of the bay, is used principally for fruit shipments and excursion business.

Channels

(635) The approach to the harbor is marked by lighted and unlighted buoys. A dredged channel, marked by buoys, leads W along the piers on the S side of the bay. In August 2000, the controlling depths were 8 feet.

(636) Small-craft facilities at Put-In-Bay provide gasoline, diesel fuel, water, electricity, sewage pump-out, and a 5-ton hoist.

(637) **Green Island**, rocky and wooded, is 1 mile W of South Bass Island. A light marks the W end of the island. A shoal extends 0.3 mile off the E end.

(638) **Kelleys Island Shoal**, with a least depth of 2 feet, is NE of Kelleys Island. A narrow channel with depths of 18 feet or more is between the NE end of Kelleys Island and the SW end of the shoal. The NE end of the shoal is about 2.5 miles from the island and is marked by a lighted buoy. A buoy marks the NW side of the shoal.

(639) **Gull Island Shoal**, 2.4 miles N of Kelleys Island, is marked on the S side by a lighted buoy. The shoal extends 1.5 miles NE from the buoy. The SW part of the shoal has numerous bare rocks.

(640) **Middle Island** is about 1.6 miles N of Gull Island Shoal. A dangerous sunken wreck is on the SW side of the island. A deep passage about 0.5 mile wide is between the island and Gull Island Shoal.

(641) **Ballast Island** is about 0.8 mile NE of the NE point of South Bass Island with shoal water between. A channel with a depth of about 8 feet and marked by buoys leads across the bank about 0.3 mile S of Ballast Island. The N side of Ballast Island is deep-to and is marked by a light.

(642) **Middle Bass Island** is 0.5 mile N of the NE projection of South Bass Island, and the main body of the island extends N 1.5 miles. From the NE end of the island, a narrow peninsula extends 1.4 miles ENE. A shoal with bare rocks extends 0.75 mile from the end of the peninsula and is marked by a lighted bell buoy. **Sugar Island** is connected to the NW corner of Middle Bass Island by a rocky ledge covered 1 foot. A 10-foot spot is about 0.5 mile NE of Sugar Island. The E, S, and W sides of Middle Bass Island have deep water within 0.3 mile.

(643) **Rattlesnake Island**, 1 mile W of Middle Bass Island, has clean shores except for a shoal extending 0.15 mile from the E end and a shoal and small islet extending 0.3 mile from the W end. A wreck, covered 23 feet, is 1.2 miles WNW of the island.

(644) **North Bass Island** is about 1 mile N of Middle Bass Island. Shoals and rocks extend about 0.4 mile offshore around the island except on the W side where a broad bank with depths of 5 to 12 feet extends 1.2 miles off. A buoy marks the SW extremity of the bank. A lighted buoy marks the extent of shoals off the NE side of the island.

Charts 14830, 14844

(645) An extensive group of shallow rocky spots, covered 10 to 16 feet, is about 1 to 2.5 miles N of North Bass Island. A buoy and a lighted bell buoy mark the S and W extremities of the area, respectively. A dangerous sunken wreck is just SE of the shoals.

(646) A group of small islands and bare rocks is on a shallow bank centered about 4 miles N of North Bass Island. **Hen Island,** 4.5 miles N of North Bass Island, is the largest and northernmost of the group. Shallow water extends about 0.2 mile offshore around the island. About 1 mile S of Hen Island, a very shallow bank extends 2 miles E and W. The other islands of the group are on this bank. **Little Chicken Island** is a small outcropping 1.1 miles S of Hen Island. On the N part of the bank, 0.4 mile NNW of Little Chicken Island, is a 2-foot spot. Between this spot and Hen Island is a deep passage about 0.25 mile wide. **Chick Island,** 4 feet high, is about 1.2 miles SW of Hen Island. Bare rocks are off the NW and SE sides of the island. **Big Chicken Island,** 12 feet high, is about 1.6 miles SW of Hen Island; bare rocks are off the NW side of the island. A depth of 11 feet is available across the center of the bank between Big Chicken Island and Little Chicken Island.

(647) **Hen Island Shoal**, with a least depth of 19 feet, is 1.3 miles N of Hen Island and is unmarked.

(648) **East Sister Island** is 8.5 miles W of Sheridan Point on Pelee Island and 3.2 miles NW of Hen Island. Shoals extend off about 0.25 mile around the island. **East Sister Shoal,** with a least depth of 7 feet, is 0.8 mile NE of the island.

(649) **North Harbour Island**, 0.7 mile N of East Sister Island, is on a shallow bank with depths to 9 feet extending 0.4 mile N and SE from the island.

Chart 14830

(650) **North Harbour Island Reef**, with a least depth of 3 feet and marked on the N side by a lighted buoy, is 1.6 miles N of North Harbour Island. In rough weather, vessels should not attempt passage between the island and the reef.

(651) **Middle Sister Island**, the northwesternmost of the Lake Erie island group, is 7.6 miles WNW of East Sister Island. The island, about 0.3 mile long, is marked at the NE end by a light. Shoals extend about 0.4 mile off the S shore.

(652) **West Sister Island** (41°44.4'N., 83°06.4'W.), the westernmost of the island group, is about 8.5 miles NNW of Locust Point on the S lakeshore. The shores of the island are deep-to except for **West Sister Reef,** a 1-foot shoal extending 0.4 mile off the SE side. A light marks the SW end of the island.

Charts 14830, *2123

(653) **Pelee Passage, Ont**. is the main vessel route through the island group in the W end of Lake Erie. The passage is bounded on the SW side by **Pelee Island, Ont.** and its contiguous shoals and on the N side by **Point Pelee, Ont.** and its contiguous shoals. The controlling depth through the passage is about 29 feet. Lighted midchannel buoys mark the turns through the passage, and lights and buoys mark the bordering shoals.

Canadian Waters

(654) **Bar Point** (42°02.7'N., 83°06.0'W.) is the rounding point of land forming the E side of the mouth of the Detroit River. The **International Boundary** roughly bisects the mouth of the Detroit River and thence proceeds upstream in a N direction, putting Bar Point in Canada. Proceeding easterly from Bar Point along the N shoreline of Lake Erie, to past the Welland Canal, to the headwaters of the Niagara River, the entire shoreline is in Canada. For a description of the Canadian waters/shoreline of Lake Erie see **Canadian Sailing Directions CEN303**; this includes Pelee Island and Pelee Passage.